National Library of Canada
Canadian Theses Service
Ottawa, Canada
K1A 0N4

Bibliothèque nationale du Canada
Services des thèses canadiennes

CANADIAN THESES

THÈSES CANADIENNES

NOTICE

The quality of this microfiche is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Previously copyrighted materials (journal articles, published tests, etc.) are not filmed.

Reproduction in full or in part of this film is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30. Please read the authorization forms which accompany this thesis.

AVIS

La qualité de cette microfiche dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

Les documents qui font déjà l'objet d'un droit d'auteur (articles de revue, examens publiés, etc.) ne sont pas microfilmés.

La reproduction, même partielle, de ce microfilm est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30. Veuillez prendre connaissance des formules d'autorisation qui accompagnent cette thèse.

THIS DISSERTATION
HAS BEEN MICROFILMED
EXACTLY AS RECEIVED

LA THÈSE A ÉTÉ
MICROFILMÉE TELLE QUE
NOUS L'AVONS REÇUE

Canada

NL 339 (r. 86/01)

0-315-22890-3

National Library of Canada — Bibliothèque nationale du Canada

Canadian Theses Division — Division des thèses canadiennes

Ottawa, Canada
K1A 0N4

PERMISSION TO MICROFILM — AUTORISATION DE MICROFILMER

• Please print or type — Écrire en lettres moulées ou dactylographier

Full Name of Author — Nom complet de l'auteur

SANDRA GUTSCHE

Date of Birth — Date de naissance	Country of Birth — Lieu de naissance
18/10/54	AUSTRALIA

Permanent Address — Résidence fixe

132 HENRY ST
BROOKLYN HEIGHTS
NEW YORK 11201
USA

Title of Thesis — Titre de la thèse

The Determinants of Health Status at Time of Discharge of Hospitalized Elderly Persons

University — Université

University of Alberta

Degree for which thesis was presented — Grade pour lequel cette thèse fut présentée

PhD

Year this degree conferred — Année d'obtention de ce grade	Name of Supervisor — Nom du directeur de thèse
1985	Dr. H. Northcott

Permission is hereby granted to the NATIONAL LIBRARY OF CANADA to microfilm this thesis and to lend or sell copies of the film.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

L'autorisation est, par la présente, accordée à la BIBLIOTHÈQUE NATIONALE DU CANADA de microfilmer cette thèse et de prêter ou de vendre des exemplaires du film.

L'auteur se réserve les autres droits de publication; ni la thèse ni de longs extraits de celle-ci ne doivent être imprimés ou autrement reproduits sans l'autorisation écrite de l'auteur.

Date	Signature
1/8/85	SGutsche

NL-91 (4/77)

THE UNIVERSITY OF ALBERTA

THE DETERMINANTS OF HEALTH STATUS AT TIME OF DISCHARGE OF HOSPITALIZED ELDERLY PERSONS

by

SANDRA GUTSCHE

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF DOCTOR OF PHILOSOPHY

IN

HEALTH CARE PLANNING AND EVALUATION

DEPARTMENT OF SOCIOLOGY

EDMONTON, ALBERTA

FALL, 1985

THE UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: Sandra Gutsche

TITLE OF THESIS: The Determinants of Health Status at Time of Discharge of Hospitalized Elderly Persons

DEGREE: Ph.D.

YEAR THIS DEGREE GRANTED: 1985

Permission is hereby granted to THE UNIVERSITY OF ALBERTA LIBRARY to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

(Signed) S Gutsche

PERMANENT ADDRESS:

132 Henry Street
Brooklyn Heights
New York 11201

DATED 1/8/ 1985

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled THE DETERMINANTS OF HEALTH STATUS AT TIME OF DISCHARGE OF HOSPITALIZED ELDERLY PERSONS

submitted by SANDRA GUTSCHE

in partial fulfilment of the requirements for the degree of DOCTOR OF PHILOSOPHY

in HEALTH CARE PLANNING AND EVALUATION.

(Supervisor)

Date: 25/7/85

TO MY PARENTS FOR THEIR LOVE AND SUPPORT

ABSTRACT

The aim of this study was to examine both individual patient and organizational variables in an effort to determine their separate and combined effects on the health status of hospitalized elderly persons. Three aspects of health status were investigated - daily, cognitive and affective functioning. When individual patient and organizational characteristics were considered separately, multiple regression indicated that for daily functioning, organizational characteristics were slightly better predictors, but for cognitive and affective functioning, the amount of variance explained by both sets of characteristics was approximately the same. When combined, organizational characteristics proved to be the stronger predictors of daily and cognitive functioning and individual patient characteristics the stronger predictors of affective functioning.

ACKNOWLEDGEMENTS

Foremost, I would like to express my gratitude to my thesis committee and especially to my thesis chairperson, Dr. H. Northcott, for providing expert guidance throughout the duration of this study. The interest and enthusiasm expressed by each member of my committee for this project was very much appreciated.

Next, I wish to extend my thanks to the Edmonton General Hospital and Alberta Hospitals and Medical Care for initiating this research and for providing financial and practical assistance.

Finally, I would like to thank my husband Horst for his patience and understanding.

TABLE OF CONTENTS

		PAGE
ABSTRACT		v
ACKNOWLEDGEMENTS		vi
TABLE OF CONTENTS		vii
LIST OF TABLES		x
INTRODUCTION		1
1.	LITERATURE REVIEW	3
	Overview of Chapter	3
	Organizational Characteristics	3
	Individual Patient Characteristics	14
	Summary	22
II.	METHODOLOGY	24
	Overview of Chapter	24
	Description of Hospitals	25
	Description of Patients	27
	Description of Dependent Variable Measures	27
	Assessment of Patients	27
	Daily Functioning	28
	Mental Status	30
	Process of Assessment of Patients' Health Status	32
	Description of Independent Variable Measures	33
	Organizational Characteristics	33
	Structural Dimensions	34
	Contextual Dimensions	35
	Hospital Type	37

Questionnaire for Nursing Staff 38
Individual Patient Characteristics 39
Methods of Analysis 40
Limitations of Study 45
Summary 46
III. FINDINGS 48
Overview of Chapter 48
Description of Individual Patient Characteristics 48
Description of Organizational Characteristics. . 53
Structural Dimensions 53
Contextual Dimensions 56
Description of Dependent Variables 62
Multiple Regression Results 65
Summary 78
IV. DISCUSSION 79
Overview of Chapter 79
Discussion of Findings 79
Summary 91
Future Research 93
TABLES 95
REFERENCES 161
APPENDIX 1 Rapid Disability Rating Scale 168
APPENDIX 2 Mental Status Questionnaire 171
APPENDIX 3 CES-D 173
APPENDIX 4 Letter of Identification 175
APPENDIX 5 Consent Form 177

APPENDIX 6	Memo to Nursing Staff Outlining the Study . .	179
APPENDIX 7	Letter of Thanks to Nursing Staff	182
APPENDIX 8	Questionnaire for Nursing Staff	184
APPENDIX 9	Questionnaire for Unit Supervisors	196
APPENDIX 10	Calculation of Nursing Hours per Patient Day	199
APPENDIX 11	Calculation of Ratio of Patients to Nurses	201
APPENDIX 12	Measurement of Technology	203
APPENDIX 13	Letter Advising Nurses of Questionnaire . . .	206
APPENDIX 14	Reminder Letter for Nursing Questionnaire . .	208
APPENDIX 15	Measurement of Individual Patient Characteristics	211
APPENDIX 16	Social Resources Questionnaire	212
APPENDIX 17	Codebook for All Data	217
APPENDIX 18	Code Book for Nursing Questionnaire	248
APPENDIX 19	Indirect Effects of Dummy Variables	256

LIST OF TABLES

TABLE	DESCRIPTION	PAGE
1	Description of Patients, by Hospital	96
2	Sex Distribution, by Hospital	97
3	Age of Patients, by Hospital	98
4	Individual Patient Characteristics, by Hospital	99
5	Number of Completed Nursing Questionnaires, by Hospital	103
6	Structural Dimensions, by Hospital	104
7	Contextual Dimensions, by Hospital	108
8	Pearson Correlation Coefficients among the Dependent Variables	118
9	Mean Level of Functioning of Patients on Discharge (or at 8 weeks), by Hospital	119
10	Number of Patients who Died during the Study, by Hospital	120
11	Mean Level of Functioning of Patients on Admission, by Hospital	121
12	Mean Level of Functioning of Patients on Admission and Discharge, by Hospital	122
13	Pearson Correlation Coefficients among Individual Patient Characteristics and the Dependent Variables	123
14	Pearson Correlation Coefficients among Organizational Characteristics and the Dependent Variables	125
15	Stepwise Regression of Individual Patient Characteristics to Explain Variance in Daily Functioning at Time of Discharge	136
16	Stepwise Regression of Individual Patient Characteristics to Explain Variance in Cognitive Functioning at Time of Discharge	138

17	Stepwise Regression of Individual Patient Characteristics to Explain Variance in Affective Functioning at Time of Discharge	140
18	Stepwise Regression of Organizational Characteristics to Explain Variance in Daily Functioning at Time of Discharge	142
19	Stepwise Regression of Organizational Characteristics to Explain Variance in Cognitive Functioning at Time of Discharge	145
20	Stepwise Regression of Organizational Characteristics to Explain Variance in Affective Functioning at Time of Discharge	147
21	Stepwise Regression of Individual Patient and Organizational Characteristics to Explain Variance in Daily Functioning at Time of Discharge	149
22	Stepwise Regression of Individual Patient and Organizational Characteristics to Explain Variance in Cognitive Functioning at Time of Discharge	151
23	Stepwise Regression of Individual Patient and Organizational Characteristics to Explain Variance in Affective Functioning at Time of Discharge	153
24	Relative Influence of Each Set of Predictors on Daily Functioning	155
25	Relative Influence of Each Set of Predictors on Cognitive Functioning	157
26	Relative Influence of Each Set of Predictors on Affective Functioning	159

INTRODUCTION

Study of the determinants of outcomes of hospitalized persons has received attention from two quite disparate sets of literature. One body of literature is found in the area of organizational effectiveness. Studies in this area have investigated the relationship among organizational characteristics such as staff/patient ratios, nursing hours per patient day, intensity of treatment provided and patient outcome. A second body of literature is found in the area of social psychology. Studies in this area have investigated the relationship among individual patient characteristics such as age, sex, level of social supports and patient outcome. Few studies however, have considered both sets of factors (organizational and individual characteristics) simultaneously in order to examine the respective influence of each. That is, most studies have tended to focus on investigating either the relationship between organizational characteristics and patient outcomes or the relationship between individual characteristics and patient outcomes.

It was the aim of this study to relate both organizational characteristics and individual patient characteristics to the outcomes of hospitalized persons and so assess the relative importance of each. It was decided, because of the current state of the literature (the relatively small amount of research which has investigated simultaneously both sets of characteristics), to investigate the relationship between a large number of both types of characteristics and patient outcome rather than analyze in depth the relationship between a small number (two or three) of these characteristics and

patient outcome. That is, it was decided to explore this research problem very broadly and to avoid testing narrow specific hypotheses.

It was decided to focus on assessing the determinants of outcomes of hospitalized elderly persons.[1] The elderly population has received little attention from researchers investigating the determinants of outcomes of hospitalized persons despite the fact that this segment of the population constitutes a large percentage of patients in long-term care hospitals. (In Alberta, for example, at December 31, 1980, 82% of the Auxiliary Hospital population was aged 65 years and over [see Alberta Hospitals and Medical Care, 1982].) With the phenomenon of population aging[2] occurring throughout the more industrially developed nations of the world, data providing insight into the factors which are linked to the health outcomes of elderly hospitalized persons are likely to be increasingly sought so that the "best" possible care can be provided to patients and so that the available health care resources can be used most efficiently.

In summary, this research was selected because there was a "gap" in the literature - a dearth of studies investigating the relative importance of organizational versus individual characteristics for the outcome of hospitalized elderly persons. Such knowledge is necessary if efficacious hospital care is to be provided to the increasing number of elderly persons.

---

1 Defined as persons aged 65 years and over.

2 Society is said to be 'aging' when the percentage of its population which is age 65 and over is rising (Stone & Fletcher, 1980).

CHAPTER I

LITERATURE REVIEW

Overview of Chapter

The purpose of this chapter is to review the literature pertaining to investigations of the determinants of health status of hospitalized persons. It will be shown that there are two relatively distinct sets of literature which examine the determinants of patient outcome. One set of literature is found in the area of organizational effectiveness and investigates the relationship between organizational characteristics such as staff/patient ratios, intensity of treatment provided to patients, staff job satisfaction and patient outcome. The second set of literature, found in the area of social psychology, investigates the relationship between individual patient characteristics such as age, sex, perceived health, social interaction and patient outcome. It will be shown that both types of studies have identified variables with strong relationships to outcome. It will also be shown, however, that as yet, few studies have attempted to combine the two relatively disparate sets of literature and to assess the separate and combined effects of individual patient and organizational characteristics on patient outcome.

Organizational Characteristics

A review of the literature investigating the relationship among organizational characteristics and outcomes of patients in hospitals indicates that research in this area can be generally classified into two categories: studies that examine 1) the relationship among

structural variables and patient outcome and 2) the relationship among contextual variables and patient outcome.

Although researchers have defined the concepts of structure and context in a variety of ways, there appears to be underlying consensus about their meaning. Structural dimensions pertain to the internal characteristics of the organization and include, for example, centralization, formalization and coordination. Contextual dimensions generally refer to the size of the organization, its technology and environment.

Georgopoulos and Mann (1962) were among the earliest researchers to investigate the relationship among organizational characteristics (both structural and contextual dimensions) and the quality of care received by patients. In their study of 10 community general hospitals, quality of nursing, medical and overall care received by patients was measured by the subjective assessments of medical staff, technicians, nurses and administrative personnel in each of the hospitals. Strong relationships were reported between the quality of care measures and coordination and differentiation. Hospitals having better coordination (defined as "...the extent to which the various interdependent parts of an organization function, each according to the needs and requirements of the other parts and of the total system" [pg. 273]) were significantly more likely to provide better nursing and overall care. Differentiation was defined as the composition and distribution of the medical and nursing staff. A higher ratio of general practitioners to patients was significantly correlated with the quality of medical, nursing and overall patient care. Similarly, a higher proportion of registered nurses among the nursing staff was

significantly associated with the quality of medical, nursing and overall patient care. The higher the proportion of aides among the nursing staff, the poorer the quality of care.

Significant relationships among the quality of care measures and some internal environmental or organizational climate variables - low levels of tension among the staff and low rates of absenteeism among professional nurses - were also reported. No significant relationships were found between quality of care and other environmental variables - the adequacy of material facilities (such as the equipment and supplies available) and costs per patient day.

Unfortunately, as the assessments of quality of care in the hospitals were made by "interested parties" - members of the hospitals' nursing, physician, technical and administrative personnel - the results should be interpreted cautiously. More objective measures of outcomes would have allowed greater confidence to be placed in the findings.

Scott, Forrest and Brown (1976) circumvented the problem of subjective appraisals by using the rate of mortality following surgery as the indicator of patient outcome. They studied patients in 17 short-term hospitals and compared mortality rates across hospitals. Before comparing mortality rates, they adjusted these rates for differences in patient mix within each hospital (for each patient the probability of death was estimated).

Four major dimensions of hospital structure were defined: 1) differentiation - the extent to which separate tasks are assigned to different units or staff, 2) coordination - the extent to which the activities of organizational members interrelate, 3) power - the extent

to which members participate in decision making or exert control over other members and 4) staff qualifications - the level of education and experience of the staff.

Two dimensions of technology were defined: 1) complexity - the extent to which work activities are characterized by intricately related tasks and 2) uncertainty - the extent to which work activities are unpredictable.

The results indicated that measures of structure were important predictors of outcome. The higher the qualifications of nursing staff, the better the patients' outcome, and the more strict the qualifications for gaining membership to the surgical staff, the better the outcome. No significant differences were found between differentiation, coordination and outcome.

Flood et al. (1982) investigated the relationship between the outcome of patients following surgery and in a sample of hospitals (N=15) and a number of structural variables - power, differentiation, coordination, staff qualifications and commitment, and contextual dimensions - size and expenditures. Outcome was defined as the extent of morbidity occurring within seven days after surgery and mortality occurring within forty days after surgery.

Regression analysis showed that the outcome of patients (both mortality and morbidity) was significantly related to a number of structural dimensions; coordination (measured as the number of contract physicians in the hospital) and differentiation (measured as the number of surgical staff specialities) were significantly (positively) related to outcome. Surgeon commitment (the percentage of each surgeon's practice at the hospital) and qualifications (the number of residences

completed) were also significantly (positively) associated with patients' outcome. Hospital expenditures, measured by expenditures per patient day, were also associated with better quality of surgical care.

Shortell et al. (1976) also examined the relationship between structural dimensions and outcome of patients following surgery. Outcome was measured in terms of the post-surgical complication rate and the medical-surgical death rate (differences in case-mix severity were controlled).

Regression analysis indicated that the measure of coordination - the ratio of informal to formal meetings for radiology, nursing and laboratory services - was significantly related to post-surgical complication rate. The higher the ratio of informal to formal meetings, the higher the post-surgical complication rate. A measure of centralization - participation of department heads in hospital operating decisions - was significantly associated with medical surgical death rate. Greater participation was associated with a lower medical-surgical death rate. Greater perceived medical staff autonomy was associated with a higher medical-surgical death rate. In contrast to Flood et al. (1982), higher costs per case were significantly associated with a higher medical-surgical death rate.

Argote (1982), in a study of emergency units in 30 hospitals, examined the relationship between coordination and the quality of nursing and medical care received by patients. Coordination was classified into two categories - programmed coordination and nonprogrammed coordination. Programmed coordination was defined as occurring when the activities of the organizational members were dictated by rules, regulations and hierarchies of authority.

Nonprogrammed coordination was defined as occurring when the activities of the organizational members were not specified in advance but rather were discussed and agreed to as required.

Measures of the quality of nursing and medical care were based on interview and questionnaire data from physicians and nurses working within the hospitals. The results indicated that when the uncertainty in the emergency unit was low (i.e., when there was little variety in the type of patient conditions that were seen) programmed coordination was more strongly associated with high quality care. When the uncertainty in the emergency unit was high, however (i.e., when there were many different types of patients that could be seen), nonprogrammed coordination was more strongly associated with high quality care.

Linn et al. (1977) investigated the relationship among structural characteristics of nursing homes and patient outcomes. Patient outcome was defined as level of functioning (measured by the Rapid Disability Rating Scale, Linn 1977) and assessed on admission and six months later. Nursing homes with more registered nurse hours per patient were associated with patient survival, patient improvement and patient discharge from the home. Nursing homes with higher professional staff to patient ratios and more services available to patients were associated with more patients being discharged. Higher quality meals were also associated with patient improvement. Other structural characteristics such as hours per patient of other service providers, total staff/patient ratios and size of home were not significantly related to patient improvement.

Studies of the relationship between institutional size and patient outcomes have produced inconclusive findings. Some researchers report that increasing size is inversely related to positive patient outcome. Greenwald and Linn (1971) in one of the earlier studies concluded that as homes for the elderly get larger, patient satisfaction, activity and communication decline (their results, however, should be interpreted cautiously for patient satisfaction was measured by asking the researchers for their impressions of the satisfaction of patients that they observed in each institution). Some support for an inverse relationship between size and well-being is provided by Penning and Chappell (1980). They analyzed data from the Aging in Manitoba Study conducted by the Department of Health and Social Development in 1971 (Havens, 1981) and found a tendency (not significant) for lowered evaluations of well-being in larger institutions.[1]

Other researchers however report that increasing size is positively related to patient outcome. Weihl (1981) compared the well-being of elderly residents in institutions ranging in size from less than 30 beds to greater than 90 beds. She reported that more residents in smaller institutions experienced loneliness and dissatisfaction than in larger institutions. She suggested that larger institutions, because of their greater number of residents, offer more opportunities for residents to develop rewarding contacts.

---

1 The sample in the Aging in Manitoba study consisted of 911 elderly residents living in housing units, hostels, nursing homes, mental and extended care hospitals.

Flood and Scott (1978) in a sample of 15 hospitals examined the influence of both organizational dimensions (structural characteristics) and individual patient characteristics on the outcomes of patients following surgery (outcome was defined as the extent of morbidity within seven days following surgery and mortality occurring within 40 days following surgery).

Of the patient variables measured (income, ethnicity, marital status and social stress) only income was significantly related to outcome; patients with higher incomes tended to experience better surgical outcomes. Of the structural variables measured and related to outcome, hospital expenditures, the percentage of each surgeon's practice at the hospital, the perceived ability of the hospital administrator to influence decisions and the power of the surgical staff over its own members were significantly (positively) associated with surgical outcomes (the amount of variance in patient outcome able to be explained by all individual and organizational characteristics measured in this study was quite small, ranging between .7% and .8%).

Holland et al., (1981) in a study of 22 wards in 3 large mental institutions, reported that patient outcome (defined as potential for community adjustment) was positively associated with both structural and contextual organizational dimensions. Improvement in potential for community adjustment was greater in those hospitals where staff were more satisfied with their work (a measure of organizational climate), staff and patients were able to extensively participate in decision making (a measure of centralization) and treatment plans were highly

individualized (a measure of technology). These variables accounted for 49% of the variance in resident improvement.

A high level of participation by patients and staff in decision making has been found by other researchers to be predictive of positive outcomes for patients. Ellsworth et al. (1981) conducted a study of patients and staff in five psychiatric hospitals. They reported that the more effective programs for institutionalized psychiatric patients (defined in terms of low recidivism rates) were characterized by active roles for both patients and staff in decision-making regarding ward management.

Flood et al. (1979) also reported that a measure of technology - the intensity of services provided to patients - was significantly related to patient outcome (defined as mortality). Hospitals providing higher than average levels of hospital services (consultations, therapeutic and diagnostic services) to their patients had better outcomes (a lower mortality rate) than expected. A second measure of technology - the duration of service (the patient's length of stay) - was negatively related to outcome.[1]

Volume of services was also found to be related to patient outcome by Shortell and LoGerfo (1981). In their study, the determinants of outcome of patients admitted to a sample of hospitals for acute myocardial infarction (AMI) and appendectomy were investigated. For AMI, outcome was defined in terms of mortality and for appendectomy, it

---

1 A standardization procedure was used to predict the level of services and outcome required by patients given their type of disease and physical status. As a result, comparisons of intensity of services and outcomes for patients across hospitals took into account differences in case-mix.

was defined as the percentage of normal tissue removed.[1] The relationships of three types of variables to outcomes were examined: hospital structural characteristics, individual physician characteristics and medical staff organization characteristics.

The findings indicated that the variable most strongly related to lower standardized mortality ratios was the overall medical staff participation in hospital decision-making. Volume of patients with AMI per family practitioner and internist was also significantly related to standardized mortality ratios (physicians treating 60 or fewer AMI patients a year experienced a 13% greater standardized mortality ratio than those treating more than 60 a year). Frequency of medical staff committee meetings, concentration of professional activity at one hospital and percentage of physicians on contract with the hospital were most strongly related (negatively) to standardized percentage of normal tissue removed.

A significant association between volume of procedures performed and higher quality care has also been reported by Luft et al. (1979). In this study, data were used from 842,622 patients to compare mortality rates for a variety of surgical procedures in 1498 hospitals. Mortality rates, adjusted for case mix, showed that for some procedures (such as open-heart surgery) increased volume was associated with decreased mortality, but for others however (such as cholecystectomy) there was no relationship. The inclusion of additional variables in

---

1 Both these measures were standardized to take into account differences in patient mix across hospitals.

the regression equation, such as hospital size, expenditures, teaching status and staff to bed ratio did not allow any more of the variance in mortality to be explained. As the authors noted, the study cannot be regarded as providing strong support for a relationship between volume and outcome as a number of other variables were not controlled, for example, experience of the surgeons (it may be that greater experience leads to improved results).

Rhee (1977) investigated the relationship among physicians' personal characteristics, organizational characteristics and quality of care. His sample consisted of 454 physicians (18 different specialities) from 22 short-term hospitals. Physicians' personal characteristics examined were degree of specialization, type of medical school attended and time in practice. The organizational characteristics examined were type of work setting - ambulatory care and hospital. Quality of care was measured by physicians' performance criteria developed for 15 diagnoses.

Rhee's findings indicated that an organizational characteristic - the physician's work environment - was the more important predictor of the quality of care provided. When the level of hospital organization increased, quality of care improved. Further, an interaction effect was noted - the influence of the work setting was found to be less strong for the more highly trained physician and stronger for the less qualified physician.

In summary, the above review indicates that the outcome of patients in hospitals is a function of a number of organizational variables - structural characteristics of the organization (such as qualifications of staff, the extent of centralization and

coordination), the technology employed (such as individualized treatment programs and intensity of services), and the nature of the environment (such as staff organization patterns and job satisfaction). A shortcoming of the past research however is the limited number of organizational dimensions which have been examined in any one study. Perhaps as a consequence, the amount of variance in patient outcome explained in some of the studies is very small.

Individual Patient Characteristics

In the literature, the relationship among a number of individual patient characteristics and health status of elderly persons has been investigated. The focus in this section will be on briefly reviewing some of the studies that have examined the relationships among age, sex, perceived health, perceived economic security, social interaction and health status of elderly persons.

The relationships between sex, age and health status have not been conclusively documented. In a number of studies differences between the health status of elderly males and females have been reported. Elderly women have been found to be more likely to experience depression, to report more symptoms and illnesses and to have more days of restricted activity and bed-disability than men of the same age (Payne & Whittington, 1976; Roth, 1975). Chappell and Havens (1980) reported that elderly women had significantly poorer mental functioning than elderly men. Other studies suggest, however, that among the elderly population there are few sex differences in health status. Larson (1978), in a review of 30 years of research on the subjective well-being of elderly persons, concluded that on a variety of measures

of well-being there appeared to be no consistent sex differences. Chappell (1983) assessed level of functioning (physical and mental) of elderly participants of Adult Day Care Programs in Manitoba, on admission and (on the average) 9.8 months later and reported that there were no sex differences between those persons who improved and those who remained stable or deteriorated.

Although the association between increasing age and increased incidences of chronic illnesses, physical and mental health dysfunctioning has been conclusively demonstrated (Gordon et al., 1976), the findings are mixed regarding whether, within the elderly population (ie. those people aged 65+), health status deteriorates with increasing age.

Chappell and Havens (1980) reported that mental health was significantly poorer for the 'old' elderly (those 75 years and older) than for the 'young' elderly (those younger than 75 years). Penning and Chappell (1980), however, in the Aging in Manitoba Study reported no signficant differences between the health status (defined as well-being) of the 'young' and 'old' elderly. Chappell (1983), in her study of change in level of functioning of participants in Adult Day Care Programs in Manitoba, reported no age differences between those persons who improved and those who remained stable or deteriorated.

The relationship between perceived health (i.e., how individuals evaluate their health) and well-being of elderly institutionalized persons has been more conclusively documented than the influence of age and sex on health status.

Palmore and Luikart (1972) demonstrated the positive relationship between perceived health and well-being (measured as life satisfaction)

- the healthier individuals perceived themselves to be, the greater their reported life satisfaction. In this study, the relationships among a variety of variables - grouped as health, activity, social-psychological and socio-economic variables - and life satisfaction were examined. The sample consisted of 502 men and women aged 46-71 chosen randomly from the membership lists of a major North American health insurance association. Self-rated health (measured on a scale of 1 to 9, where 9 = perfect health) was by far the strongest variable related to life satisfaction. The zero-order correlation of self-rated health with life satisfaction was more than twice that of any other variable. Further, self-rated health accounted for approximately 2/3 of the explained variance in life satisfaction. Self-rated health was a stronger predictor of life satisfaction than actual health status (as measured by physicians' ratings). (This implies that individuals can still report high life satisfaction if they perceive their health to be good even if in reality it is relatively poor).

Noelker and Harel (1978), in a study of 125 residents in 14 nursing homes and homes for the aged, also found that self-rated health was one of the significant predictors of well-being (again measured as life satisfaction). (Other variables related to life satisfaction in this study were desire to live in the facility, feelings about the staff, met desires for visitors and importance attributed to food).

Similarly, Penning and Chappell (1980), in an analysis of data collected in the Aging in Manitoba study, reported that perceived health was the most important predictor of well-being of elderly persons living in institutions (other variables investigated in this

study were frequency of visits with closest friends and relatives, actual level of health and opportunities for decision-making in the institution).

Penning and Chappell (1980) also found a significant relationship between perceived economic security (that is, how individuals perceive their income and assets will take care of them in the future) and well-being. The more secure individuals felt about their future financial situation, the higher their evaluation of well-being. Perceived economic security was found to be of greater importance to well-being than the objective measure (actual income).

Palmore and Luikart (1972) reported that income had a moderately positive relationship to satisfaction ($r = .10$) when all of their subjects were considered together. When the sample was broken down into two age groups (those aged 46-59 years and 60-71 years), however, income was not able to explain a significant portion ($p > .05$) of the variance in life satisfaction for the older age group. For the younger age group the association of income to well-being was significant.

Although many studies have assessed patient satisfaction with care and examined its determinants, very few have investigated the relationship between patient satisfaction and patient outcome. One of the exceptions is the study by Woolley et al. (1978) in which the relationship between satisfaction with care and outcomes of patients attending ambulatory care clinics for acute problems was investigated. Outcome was defined as level of functioning and measured with a 7-item scale assessing frequency of symptoms and amount of restricted activity. Woolley et al. reported that significantly more persons who were satisfied with the care they had received had "good" outcomes (a

"good" outcome was regarded as occurring when the patient regained his/her usual functional status after an episode of acute illness). Four variables explained 89.5% of the variance in patient satisfaction with care - patient's satisfaction with outcome, whether the care was provided by the patient's usual physician, the outcome expected by the patient and the communication between the patient and the physician about the expected outcome.

There is increasing evidence (although not conclusive) that social interaction carries with it certain health benefits. Penning and Chappell (1980), in their study of the determinants of well-being of elderly institutionalized residents, reported that frequency of contact with both relatives and close friends was significantly and positively associated with well-being (frequency of contact with staff and voluntary workers was not, however, significantly related to well-being).

Harel (1981), in an investigation of the determinants of well-being of elderly residents in nursing homes and homes for the aged, reported that continuing ties (or associations) with people and social needs gratification were the most important predictors of well-being. In institutions where residents were encouraged to continue relationships with preferred members of their own social network, to maintain personal responsibility (for themselves, their possessions and their immediate environment) and were assisted in meeting their social needs (for example, through the scheduling of a variety of social activities), there was significantly higher resident morale, life satisfaction and satisfaction with treatment.

A study by Wells and MacDonald (1981) of the effects of inter-institution relocation of elderly persons indicated that the number and stability of close relationships with family and friends outside the institution was of particular importance in minimizing the negative effects of relocating elderly people (physical and mental deterioration). Residents who had close relationships with persons outside of the institution adjusted more successfully to inter-institutional relocation in terms of life satisfaction, physical and mental functioning.

Noelker and Harel (1978), in their study of 125 residents in 14 nursing homes and homes for the aged, reported that one of the important predictors of well-being (measured as life-satisfaction) for institutionalized elderly residents was whether their desire for visitors was met.

Arthur et al. (1973), in a study of nursing home residents, reported a significant increase in the morale of residents who received companionship from undergraduate university students compared with those who did not. Similarly, Greene and Monahan (1982), in their study of the influence of visitation on nursing home patient well-being (N=294), reported a significant negative relationship between visitation frequency and patient psychosocial improvement (that is, agitation, confusion, depression and poor self-care).

Reinke et al. (1981) reported significant improvement in cognitive functioning and morale of elderly persons receiving visits compared with those who did not. In this study nursing home residents randomly allocated to the visitation condition received twice weekly visits from undergraduate students for a period of eight weeks. Residents in the

control condition did not receive any student visitors during the experimental period. All residents were administered a battery of cognitive tests and self-report measures of morale before and after the experimental period. Overall, on post-test residents in the visitation condition scored significantly higher on the cognitive tests and morale scales than residents in the control condition.[1]

Stephens and Bernstein (1984) investigated the relationship among social interaction and well-being for 44 residents living in planned housing (i.e., apartment complexes for functionally independent elderly people). Social interaction was defined as the amount and sources of social, psychological and material support available to residents. Well-being was defined in terms of physical health. Social isolation was found to be related to physical health problems. Residents experiencing chronic problems of health, long-term illnesses and sensory impairments were found to be more socially isolated from other residents and/or from family than the healthier residents.

In contrast to the above research, however, Conner et al. (1979) found that both the number and frequency of social relationships was of little importance for the well-being of older people. In this study, well-being was defined as life satisfaction and data were obtained from interviews with 218 non-institutionalized elderly persons. Similar results were found by Hoyt et al. (1980). Hoyt et al. interviewed a random sample (N=124) of elderly residents living in a mid-western North American community. Well-being was defined as life satisfaction.

---

1 Residualized post-test scores were calculated to eliminate the potential influence of differences in pre-test scores on post-test scores.

Satisfaction was found not to be significantly related to informal activity (measured as the number of days per year the respondent interacted with friends and relatives and the number of persons living in the household) and solitary activity (measured as the number of solitary type activities engaged in by the respondent). Satisfaction was however significantly related to the measure of formal activity (the number of voluntary associations to which the respondent belonged).

The results of the above two studies suggest that it may be the quality of social interactions that a person has that is important for health, rather than the actual number of interactions. Support for this explanation is provided by Ward et al. (1984) who found that perceived sufficiency of social relationships had a stronger relationship with subjective well-being than the number and frequency of social relationships. In this study, well-being was defined as morale and data about social ties and supports were obtained through interviews with a sample of 1,185 residents (aged 60 years and over) living in a North American community. The objective characteristics of the respondents' social relationships (measured as number of children, neighbours and helpers and frequency of interaction with each group) exhibited only weak associations with morale. The subjective measures (whether children and neighbours were seen enough and sufficient help was received) were more strongly related to morale. Whether children or neighbours were seen enough was more strongly related to morale than was actual interaction with children or neighbours and whether respondents felt they received enough help was more strongly associated with morale than actual availability of helpers or confidants.

In summary, the above review indicates that the health status of institutionalized elderly persons is associated with a number of individual patient characteristics including age, sex, level of perceived health, level of economic resources and frequency of social interaction. A short-coming of the studies in this area, however, is the restricted way in which health status has been defined (frequently in terms of perceived well-being) and the concentration of research on elderly persons in the community and institutions such as nursing homes (rather than in hospitals). As a result, it is difficult to reach any definitive conclusions about the impact of individual patient characteristics on outcomes (besides perceived well-being) of hospitalized elderly persons.

Summary

This review of the literature has shown that a variety of organizational characteristics and individual patient characteristics are related to the health status of elderly persons. Relationships were found between organizational characteristics such as physician/patient ratios, proportion of registered nurses, intensity of treatment and patient outcomes. Relationships were also found between individual patient characteristics such as frequency of social interaction, perceived health and economic resources and health status.

No studies could be located in which a large number of both organizational characteristics and individual patient characteristics were combined in an attempt to explain variance in patient outcome. As a consequence, whether organizational characteristics or individual patient characteristics are more strongly related to patient outcome is

still in the realm of speculation. Further, it is not clear which particular organizational characteristics or individual patient characteristics are the important predictors of health status. It is the aim of this study to examine both organizational and individual variables in an effort to determine their separate and combined effects on patient outcome.

CHAPTER II

METHODOLOGY

Overview of Chapter

It was the aim of this study to examine the effects of both organizational and individual patient characteristics on health status at time of discharge of hospitalized elderly persons. To assess the relationship between organizational characteristics and outcome, patients in three different types of hospitals were studied - an auxiliary hospital, a specialized auxiliary hospital and a rehabilitation hospital. These hospitals were purposively selected to represent diversity in organizational patterns. Organizational dimensions such as staff/patient ratios, intensity of treatment provided to patients, nursing hours per patient day and number of direct-care occupational specialties were assessed at each hospital. To assess the relationship between individual patient characteristics and outcome, each patient was interviewed to obtain information on such variables as level of social supports, perceived health and perceived economic resources. The amount of variance in outcome explained by these two sets of organizational and individual patient characteristics, uniquely and together, was then determined.

The purpose of this chapter is to describe (1) the hospitals selected for inclusion in the study, (2) the patients assessed in each hospital, (3) the procedure by which patient outcome was measured (the dependent variables) and (4) the procedure by which the organizational and individual patient characteristics were measured (the independent variables).

Description of Hospitals

The hospitals selected for inclusion in the study were located in the Province of Alberta. As the aim of the study was to assess the determinants of health status at time of discharge of hospitalized elderly persons, it was decided to choose hospitals which admit, in the main, elderly persons. To maximize organizational diversity, three different types of hospitals were chosen - an auxiliary hospital, a specialized auxiliary hospital (Youville) and a rehabilitation hospital (Glenrose).

Glenrose Rehabilitation Hospital is regarded by Alberta Hospitals and Medical Care as providing intensive rehabilitation therapy to patients over a relatively short period of time. Auxiliary hospitals, in comparison, are regarded as providing a slower paced form of care to patients. Youville began operating in 1982 and is defined by Alberta Hospitals and Medical Care as a specialized auxiliary hospital. Although no guidelines as to the types and intensities of services provided by Youville could be obtained from Alberta Hospitals and Medical Care, discussions with health care providers indicated that, in general, Youville was perceived to offer services to patients that were more intense than those provided by auxiliary hospitals and less intense than those provided by general hospitals. Youville was designed exclusively for elderly persons and is staffed with physicians having specialization in geriatric medicine. At both Youville and Glenrose, the qualifications of nurses are higher and the ratios of patients to nurses are lower than at auxiliary hospitals. Also a larger number of occupational specialties are employed at both Youville and Glenrose than at auxiliary hospitals. Although it is sometimes

stated that elderly persons of similar health status have equal chance of being admitted to each type of hospital (Youville, Glenrose and auxiliary) it is widely believed by health administrators that the health status of patients at Glenrose and Youville is similar and that the health status of patients at auxiliary hospitals is, by comparison, lower. (No "hard" data however was available to support this claim.)

Due to the relatively slow rate of admission to auxiliary hospitals, four auxiliary hospitals were selected for inclusion in the study in order that a sufficient number of patients could be obtained over a three to four month period. The following auxiliary hospitals were selected:

Bethany Care Centre

Dr. Vernon Fanning Extended Care Centre

Glenmore Park Auxiliary Hospital

Good Samaritan Auxiliary Hospital

The Youville, Glenrose and four auxiliary hospitals are all large hospitals (190 beds or more) and located in urban settings, either Edmonton or Calgary. Data from the four auxiliary hospitals were aggregated as the number of patients from each separate auxiliary hospital was too small to permit between hospital analysis. (Hereafter the four auxiliary hospitals will be refered to as the Auxiliary Hospital.)

After selecting the hospitals which were to be included in the study, letters were sent to the Administrators explaining the study and requesting a meeting to discuss their involvement. All six hospitals contacted agreed to participate in the study.

Further meetings were then held with the Directors of Nursing at each hospital to discuss the methodology in greater detail. The date at which assessment of patients would commence was arranged and the procedure by which each hospital would advise the interviewers of admissions was devised.

Description of Patients

The assessment of admissions to the aforementioned hospitals began on November 20th, 1984 and concluded on February 1st, 1985. However, only those elderly patients admitted who met the following criteria were included in the study:

(1) Stayed in the hospital for a minimum of 10 days.

(2) Were not transferred to an active treatment hospital.

A length of stay of ten days was considered by hospital staff to be the minimum time during which it was realistic to expect that the hospital would be able to effect some change in the health status of the patient. Patients whose conditions deteriorated such that hospitalization in an active treatment hospital was required (e.g., if they suffered a stroke) were excluded from the study because their worsened conditions precluded them from being interviewed for the reassessment and because their different hospital context would contaminate the study.

Description of Dependent Variable Measures

Assessment of Patients

In this study patient outcome was defined in terms of health status. Health in the elderly is usually defined in one of two ways:

(1) the presence or absence of disease and (2) the degree of functional disability (Chappell, 1981). A definition of health in terms of pathology or disease states (the medical model) has traditionally been used by health personnel. In accordance with this model, judgements of health are arrived at 'objectively' through observation, examination and the findings of laboratory tests (Shanas & Maddox, 1976).

This approach to describing the health of the elderly has been criticized by many researchers (Sherwood, 1975). A common criticism is that an emphasis on pathology does not readily permit health care providers to assess a patient's progress and so perpetuates the belief that elderly persons are not amenable to changes in health status. To dispel such notions there has, of late, been increasing emphasis on developing measures of functional status.

Functional status represents the level of an individual's capabilities in a variety of areas including "physical health, quality of self-maintenance, quality of role activity, intellectual status, social activity, attitude toward the world and toward self, and emotional status" (Lawton, 1975, p. 465). As it would be expensive, time-consuming and likely a burden for patients if all these aspects of functional status were measured, it was decided in this study to focus on daily functioning ability and on mental status.

Daily Functioning. Daily functioning measures can be divided into two categories: those that assess basic self-care activities (such as bathing, dressing and eating) and those that assess more complex activities necessary for independent living (such as cooking, shopping and managing medications).

Given that the aim of this study was to assess change in functioning of hospitalized persons over a relatively short period of time, it was considered appropriate to evaluate the ability to perform basic self-care activities. Linn's Rapid Disability Rating Scale (RDRS, Linn, 1967) was chosen to assess this aspect of daily functioning (Appendix I). This instrument was developed especially for research purposes and in particular for assessing treatment changes in chronically ill elderly persons. It was designed mainly for use by nursing personnel, although anyone with a thorough knowledge of the patient's condition is able to provide the assessment. The instrument contains 16 items which refer to areas of functioning and self-care independence. Responses are rated along a 3-point scale: no impairment or special help required, moderate impairment or assistance needed and substantial impairment or complete assistance needed. A total disability score is obtained by adding the scores of the 16 items.

Linn demonstrated that the scale is highly reliable for inter-rater and test-retest analyses. Independent ratings made on 20 patients by 60 observers showed a .913 agreement. There was a correlation of .813 ($p < .001$) between ratings made within an average of 3 1/2 days on a sample of 100 patients by hospital nursing personnel and nursing home staff. In this study, tests of inter-rater reliability (with two nurses) conducted for 72 respondents revealed a Pearson correlation coefficient of .95. Internal consistency was assessed using Cronbach's alpha and found to be .93.

Linn also reported that the scale has high validity: scores on 100 nursing home patients correlated positively with physicians' prognoses, the number of previous hospitalizations, the length of current

hospitalization and the number of deaths within a 6-month period.

Minor changes were made to the scale to render it suitable for use in this study. For example, item 11 "shaving" was expanded to include other activities associated with grooming such as brushing teeth and combing hair. Scores were calclulated so that the higher the score, the better the physical functioning.

Mental Status. Mental status is frequently divided into cognitive and affective functioning. The capacity to be oriented for time, place and person, to remember and to perform intellectual tasks of varying difficulty are generally included under the term cognitive functioning. Affective functioning generally includes depression, demoralization and suicidal risk.

In this study the Mental Status Questionnaire (MSQ) designed by Kahn et al. (1960, Appendix 2) was chosen to measure cognitive functioning.

The MSQ contains 10 items to which responses are either correct or incorrect. Each correct answer scores one point and the number of correct answers is summed - the higher the number of correct answers, the better the cognitive functioning.

Kahn et al, reported alpha reliability of .84 and test-retest reliability of .80. (In this study internal consistency (Cronbach's alpha) was found to be .93.) Kahn et al. also reported that scores from the MSQ correlated highly with clinical diagnosis of organic brain syndrome. In a study of 1077 geriatric patients, 94% of those patients making no or few errors on the MSQ were rated as having none or mild chronic brain syndrome. Of those patients with 10 MSQ errors, 95% were considered to have moderate to severe chronic brain syndrome. Chappell

and Havens (1980) have found that MSQ correlates highly with other measures of cognitive functioning.

As with the Rapid Disability Rating Scale minor changes were necessary to make the MSQ suitable for use in this study. For example, "Who is the President of the United States?" was changed to "Who is the Prime Minister of Canada?" Scoring was calculated so that the higher the score, the higher the cognitive functioning.

Affective functioning in this study was assessed with the Centre for Epidemiological Studies Depression Scale (CES-D, Radloff, 1977, Appendix 3). Items in the CES-D are designed to measure depressive symptomatology. Included are items assessing depressed mood, feelings of worthlessness, helplessness, hopelessness and loss of appetite. Responses are scored from 0 to 2 on a scale of frequency of occurrence for each symptom. Responses to the 20 item scale are summed to obtain a total score with a higher score indicating better health with fewer symptoms of depression.

Radloff reported high internal consistency (.85) and adequate test-retest reliability (beteween .45 and .70). (In this study, alpha reliability was found to be .88.) Radloff also reported that the CES-D correlated highly with clinical ratings of depression, other self-report measures of depression, life events (the more negative the event, the higher the depression score of those who experienced it) and improvement after treatment (the more the patient had improved after treatment, the greater the decrease in level of depression).

As with the previous two scales it was necessary to modify the CES-D (the number of items was reduced and their wording was simplified) to render it suitable for use with elderly persons.

Process of Assessment of Patients' Health Status

Interviewers from a variety of backgrounds - nursing, physiotherapy and education - were chosen to assess the patients on the selected measures of functioning. Prior to commencing the assessments, training sessions were held with the interviewers to instruct them on the correct administration of each scale and the method of scoring. Each interviewer was provided with a letter outlining her association with the study which she took with her when assessing patients in the various hospitals (Appendix 4).

Before commencing each assessment, the interviewers were instructed to explain, in brief, the nature of the study and obtain the patient's written consent (Appendix 5). Patients were told that they had the right to refuse to be interviewed or to refuse to respond to any portion of the interview. When the patient was unable to give consent (e.g., if he/she was too mentally confused) a relative was contacted for permission.

After each interviewer had assessed five patients on the average, a further training session was held to discuss the questions which were difficult for respondents to answer and questions were reworded where required to ensure that the "correct" information was obtained.

Each patient was assessed on the selected measures on the average three days after admission. While the interviewers administered the MSQ and CES-D, a nursing staff member who was familiar with the patient's condition was asked to complete the RDRS. Patients were reassessed on the same measures at discharge. If a patient had not

been discharged after eight weeks he/she was reassessed at this time.[1]

Interviews typically lasted 15 minutes, although the range was from 10 to 45 minutes.

During the assessments, regular meetings were held with the Directors of Nursing and, in some hospitals, the Unit Supervisors/Head Nurses to discuss difficulties associated with the data collection and to inform them of each stage of the study. In addition, a memo was sent to all nursing staff in each hospital outlining the aim of the study and the type of information that was being collected (Appendix 6). On completion of the study, a letter of thanks was sent to the Directors of Nursing and Nursing Staff at each hospital (Appendix 7).

Description of Independent Variable Measures

Organizational Characteristics

In the literature two types of organizational dimensions are generally identified - structure and context. Structural dimensions pertain to the internal characteristics of the organization, for example, centralization, coordination and complexity. Contextual dimensions generally refer to the size of the organization, its technology and environment. In this study dimensions of both structure and context were assessed and related to patient outcome. In addition, the relationship between type of hospital and patient outcome was examined.

---

1. The rationale for choosing eight weeks as the "cut-off" point was based on what hospital personnel deemed to be sufficient time for change in patients' functioning to have occurred.

Structural Dimensions. The dimensions of structure which were measured and related to outcome in this study were complexity, centralization, coordination and professionalization.

Complexity was defined as "the degree of structural differentiation within a social system" (Price, 1972, p. 70) and measured as the number of direct-care occupational specialties existing in the hospital. This information was obtained from the Directors of Nursing at each hospital.

Centralization was defined as "the degree to which power is concentrated in a social system" (Price, 1972, p. 43). It was measured by: (i) asking a sample of nurses in each hospital for their perception of the extent of their participation in decision-making. The questions used to obtain information from the nurses about participation in decision-making are listed in Appendix 8 (Part B). These questions have been used in earlier research with nurses and have demonstrated a satisfactory degree of validity (Leatt & Schneck, 1980).

(ii) the frequency with which the patient and patient's family attended case conferences. For each patient this information was obtained from the Nursing Unit Supervisors/Head Nurses (Appendix 9, Question 1).

Coordination was defined as "...the extent to which the various interdependent parts of an organization function each according to the needs and requirements of the other parts and of the total system" (Georgopoulas & Mann, 1962, p. 273). Coordination was measured by:

(i) the frequency with which interdisciplinary staff case

conferences[1] were held to discuss the patient's treatment.

(ii) the frequency with which nursing staff contacted the patient's family to discuss the patient's treatment. For each patient, this information was obtained from the Nursing Unit Supervisors/Head Nurses (Appendix 9, Questions 1 and 2).

Professionalization was defined as the level of formal education of employees and measured as:

(i) the presence of physicians on staff with speciality registration in geriatric medicine.

(ii) the percent of nurses in the hospital with Registered Nurse qualification.

(iii) the number of Registered Nurse Effective Hours per Patient per Day (see Appendix 10 for method of calculation).

(iv) the ratio of patients to Registered Nurses (see Appendix 11 for method of calculation).

Information pertaining to the indicators of professionalization was obtained from the Directors of Nursing and Administrators in each hospital.

Contextual Dimensions. Contextual dimensions which were considered in this study were size, technology and organizational climate.

---

1. An interdisciplinary staff case conference was defined in this study as a prearranged meeting of a number of occupational specialties for the purpose of reviewing patients' progress and planning treatment. It did not include the regular daily conferences held between nursing staff or any ad hoc meetings between different occupational specialties.

The size of the hospital was defined as the number of beds.[1]

Technology was defined as "...a series of procedures designed to transform the raw material from one state to another in a predetermined manner" (Hasenfeld & English, 1974, p. 12). It was measured by reviewing the hospital record of each patient in the study and recording information about the number of diagnostic services, consultations, medications, and the amount of rehabilitation treatment received by the patient during the period of hospitalization (see Appendix 12 for the method by which information about technology was extracted from the patient's chart). Nursing Unit Supervisors/Head Nurses were asked to record the frequency with which the attending physician visited the patient during his/her stay in hospital (Appendix 9). Each patient's length of stay was also recorded.

The internal environment or organizational climate was defined as "...the prevalent attitudes, values, norms and feelings employees have concerning the organization" (Steers, 1977, p. 103). It was measured by asking a sample of nurses in each hospital about their:

(i) job satisfaction

(ii) perception of the level of stress on their unit.

(iii) perception of the adequacy of the material facilities at the hospital.

The questions used to obtain information from the nurses about job satisfaction and perceived job stress are listed in Appendix 8

---

1. As only large hospitals (N > 190 beds) were included in this study, size is a somewhat truncated variable and its effect on patient outcome cannot be thoroughly investigated.

(Sections A and C). These questions have been used in earlier research with nurses and have demonstrated a satisfactory degree of validity (Leatt & Schneck, 1980). The questions used to obtain information from the Nurses about adequacy of material facilities are listed in Appendix 8 (Section D). Four of these questions were used by Georgopoulos and Mann (1962) in their study of community hospitals. A fifth question - adequacy of therapeutic services available for patients - was also included.

Nursing Unit Supervisors/Head Nurses were also asked to rate their staff's feelings towards the patient during the latter's stay in hospital (Appendix 9).

Hospital Type. To assess the effect of hospital type on patient's level of functioning at discharge, it was necessary to create dummy variables to represent types of hospital.[1] Each type of hospital - the rehabilitation hospital (Glenrose), the specialized auxiliary hospital (Youville) and the Auxiliary Hospital - was regarded as a separate variable and cases were assigned an arbitrary score of 1 to indicate the presence of the category and 0 to indicate its absence. For example, on the dummy variable standing for Youville (DYOU), a patient in Youville scored 1 and 0 on the other two hospital categories. On the dummy variable standing for Glenrose (DGLEN), a patient scored 1 and 0 on the other two categories. The Auxiliary Hospital was regarded

---

1. For coding, type of hospital was assigned a number (1 - Youville, 2 - Glenrose and 3 - Auxiliary). These numbers however, cannot, as in conventional regression analysis, be treated as "scores" because they do not have an order or unit of measurement (hospital is a nominal variable).

as the reference category, that is, the category from which the effects of the dummies were evaluated.

Questionnaire for Nursing Staff

A random sample was used to select nursing staff in each hospital to complete the questionnaire soliciting opinions about job satisfaction, job stress, and participation in decision-making. Eighty nurses were selected in Bethany, Fanning, Youville, Glenmore Park and Glenrose Hospitals. Sixty-five nurses were selected in the Good Samaritan Hospital.[1] In each hospital, the mean of nurses' responses to all the questions was calculated and used in the subsequent analyses.

A breakdown of the level of qualifications of the nursing staff (RN, RNA, N.ATT) and their work status (full-time, part-time) was obtained from each hospital and then a random sample was chosen which approximated this distribution.

In each hospital, before the questionnaires were distributed, a letter was sent to all nursing staff advising that, as part of the study, some of them would be receiving a questionnaire and their cooperation in completing it as soon as possible would be appreciated (Appendix 13).

Each nurse who was selected received a package containing the questionnaire, an outline of the study and an addressed envelope

---

1. These numbers of nurses were regarded as sufficient to obtain understanding, in each hospital, of nurses' perceptions of their work and the people with whom they work. In the Good Samaritan Hospital, only 65 nurses were selected because the Director of Nursing did not want a larger number of nurses surveyed.

(marked confidential) in which to place the completed questionnaire (Appendix 8). The nurses were assured that their individual answers would be anonymous and were told not to write their names on the questionnaire.

A week after the questionnaires were distributed, a reminder letter was sent to all nursing staff, informing them of the number of questionnaires which had been returned and urging them to complete their questionnaire, if they had not yet done so, as soon as possible, (Appendix 14).

Individual Patient Characteristics

The literature identifies a variety of individual patient characteristics that are related to health status improvement. This study focused on the relationship among demographic variables (age and sex), perceived economic resources, perceived health, satisfaction with care, social interaction and outcome.

The questions used to obtain information about perceived economic resources, perceived health and satisfaction with treatment are listed in Appendix 15.

Questions from the Older Americans Resources and Services Program (OARS) Social Resources Scale (Pfeiffer, 1976) were used to measure aspects of individuals' social relationships (Appendix 16). This scale is one of the five components of the OARS Multidimensional Functional Assessment Questionnaire. The items in the Social Resources Scale elicit information about family composition, patterns of friendship and visiting and availability of a confidant and helper should the need arise.

The OARS instrument was shown, by its authors, to have adequate inter-rater reliability. For all the scales (5) of the instrument inter-rater agreement (Kendall's W) was statistically significant ($p < .001$). In an examination of test-retest reliability, 30 elderly persons were retested over a 3-6 week interval. For all the scales except one (subjective mental health), the correlations were statistically significant ($p < .05$), with the majority of test-retest correlations being significant at $p < .001$. The authors claim validity of the OARS instrument based on its ability to discriminate among different elderly populations - elderly institutionalized persons, those attending clinics with age-related health problems and those living independently in the community. On all measures, community residents were found to be the most functional and institutional residents the least.

A few changes were made to the OARS Social Resources Scale to make it suitable for use in the study. Some of the questions that were more suitable for people who lived in nursing homes than hospitals were deleted, for example, "Does your spouse live here also?" The questions which were used in the scale measured both the quantity and quality of the individuals' social relationships.

Methods of Analysis

First, the means and standard deviations of all the variables used in the study were calculated. Second, t-tests were used to determine whether there were significant differences between the hospitals on each variable. Third, bivariate correlations were used to identify significant relationships between patient functioning and the

individual patient characteristics and between patient functioning and the organizational characteristics.

Finally, stepwise multiple regression was used to determine which variables were the best predictors of health status as well as to evaluate the overall contribution of the independent variables. Further, multiple regression was used to assess the relative influence of each set of independent variables, that is, of the organizational and individual patient characteristics.

In stepwise multiple regression, the variable which explains the largest proportion of the variance in the dependent variable is entered first into the equation. The variable which explains the largest amount of the remaining variance after the first variable has been taken into account is entered next. This procedure continues until no variable adds a statistically significant amount of explained variance (at the .05 level). Independent variables are therefore entered only if they meet a certain statistical criterion. Variables are also deleted if at each successive step they no longer meet a pre-established criterion (at the .10 level).

Missing values were deleted using the pairwise option. This method is recommended when a large number of variables are being investigated and each has only a few missing values. With pairwise deletion of missing data a case is eliminated from calculations for which it has a missing value on the particular variable under consideration. (In comparison, with listwise deletion of missing data, only cases with non-missing values on all the variables used in the regression are included in the analyses.)

To ensure valid and reliable results it was decided to:

(1) divide the sample into two halves,

(2) use one half of the sample to identify the significant predictors,

(3) enter the identified predictors into regression equations using the second half of the sample and

(4) compare the R^2 value and partial regression coefficients found with the first half of the sample with those found using the second half.

If, with the second group of patients, the independent variables accounted for a similar amount of variance and exhibited similar relationships with the dependent variables as in the first group, then it would be unlikely that the observed relationships had occurred by chance. In other words, this strategy provides a test of the validity of the regression results. This procedure reduces the likelihood of finding chance relationships between independent and dependent variables; with a large N, as in this study, the probability of finding significant correlations increases, that is, the probability of capitalizing on chance increases.

The following method was used to randomly divide the sample into two halves. First, in all the hospitals, the patients who died during the study and those who were still living at the time of reassessment were separated. Then, within each hospital those patients who had died and those who were alive were randomly divided into 2 groups. A group of patients was then formed consisting of approximately half of the 'alive' patients and half of the 'died' patients from each hospital in which to conduct the analyses. In the group of patients which was

selected to perform the analyses, correlations between the dependent variables and the two sets of independent varibles - individual patient characteristics and organizational characteristics - were then calculated.

All independent variables which correlated significantly (at the .05 level) with a dependent variable were entered into the regression equation for that dependent variable. For each dependent variable, separate regression analyses were performed with first the organizational characteristics and then with the individual patient characteristics.[1] The organizational characteristics which emerged as predictors for each dependent variable from the regression of that dependent variable on all the organizational characteristics and the individual patient characteristics which emerged as predictors for each dependent variable from the regression of that dependent variable on all the individual patient characteristics were then combined into one regression equation so that their joint influence could be ascertained. For each dependent variable, the outcome of this final regression using patients in both the first half and the second half of the sample was compared.

The results indicated that the R^2 value and partial regression coefficients were essentially the same in the two groups of patients.

---

1. Regressions were performed for (1) all patients and (2) only patients who were living at time of reassessment in order to see if there was any difference in the regression coefficients and the amount of variance explained.

Minor differences in the magnitude of the regression coefficients were noted, but no more than would be expected from random fluctuations. Consequently, it was decided that the results of regression analyses using all patients would be valid and unlikely to be capitalizing on chance.[1]

In the whole sample, as in the half sample, to examine the separate effects of individual patient and organizational characteristics on the dependent variables, correlations were first calculated between all the independent variables and the three dependent variables. The individual patient and organizational characteristics which correlated at the .05 level with each dependent variable were then entered into separate regression equations for that dependent variable. The individual patient characteristics which emerged as predictors for each dependent variable from the regression of that dependent variable on all the individual patient characteristics and the organizational characteristics which emerged as predictors for each dependent variable from the regression of that dependent variable on all the organizational characteristics were then combined into one regression equation so that their joint influence could be ascertained.

---

1. Within the half sample, a comparison of the regression results using (1) all patients and (2) only patients who were living at time of reassessment produced somewhat different results. This is not surprising, though, when it is realized that the patients who died all received extreme scores (zero's) on the dependent variables and that the slope of regression line is very much influenced by extreme scores or outliers. To avoid having the small number of patients who died (N=20) possibly biasing the results of the study it was therefore decided to exclude them from the regression analyses.

Limitations of Study

One of the limitations of this study is that the instruments chosen to measure the three dependent variables may not have been sensitive enough to pick up "all" the changes in functioning which may have occurred during the patient's period of hospitalization. The instruments selected, however, had been shown in previous research to be sensitive to short term changes in the health status of various populations and two of the instruments had been developed especially for use with the elderly. As nursing staff were being asked to administer the measure of daily functioning, an instrument had to be chosen which was quick and easy to administer. A more finely developed tool which would take considerable time and effort would have been unacceptable to the nurses.

A limitation of this study is the lack of emphasis on pathology (that is, on medical diagnosis). Patients' levels of daily, cognitive and affective functioning were chosen as the dependent variables rather than diagnosis or pathology because a review of the literature and discussions with medical and nursing personnel indicated that over a period of hospitalization, it was quite likely that a patient's level of functioning would change while his/her diagnosis might remain the same. On the other hand, for some individuals it is possible that over their period of hospitalization the complexity and extent of their pathology might change while their levels of functioning remain constant (e.g., a person who gets sicker while functioning remains impaired and unchanged).

Another limitation is that it was necessary to aggregate data from four auxiliary hospitals. Although this procedure was necessary as the number of patients at each auxiliary hospital was too small to permit between hospital analysis, nevertheless this strategy may have masked individual differences among the hospitals.

A further limitation is that relatively few hospitals were investigated. Also, as the hospitals and patients were all in Alberta, generalization to non-Albertan hospitals and patients must remain tentative.

The study is also limited in that many of the independent variables were measured by asking nurses for their perceptions of their work and the people with whom they worked. Although perceptual data have been used frequently by researchers and are regarded as a valid way of gathering data, the reliability of the information may be questioned.

Finally, the statistical analyses used in the study had some limitations. A problem with using multiple t-tests to identify differences between hospitals on many of the independent variables is that the likelihood of finding significant differences purely by chance increases (one in twenty t-tests can be expected to yield significance at the .05 level even if the two means are, in fact, identical).

Summary

To assess the determinants of health status at time of discharge of hospitalized elderly persons, the level of functioning of patients in a variety of hospitals was assessed on admission and on discharge (or eight weeks later). A variety of organizational characteristics

and individual patient characteristics were then related to outcome. This section described (1) the method by which the outcome of patients (the dependent variable) in each hospital was assessed and (2) the measures used to assess the independent variables.

CHAPTER III

FINDINGS

Overview of Chapter

The purpose of this chapter is to describe the results of the analysis. First, the findings with respect to the independent variables (individual patient characteristics and organizational characteristics) are described. Second, the findings with respect to the dependent variables (the three measures of health status) are described. Third, the significant relationships among the independent and dependent variables, as identified by means of bivariate and multiple regression analyses, are discussed.

Description of Individual Patient Characteristics

In this section, selected characteristics of the patients in the study are described. As previously stated, the patients from the four auxiliary hospitals are considered together as the number from each separate auxiliary hospital was too small to permit between hospital analysis.

Table 1 shows that, overall, there were 328 patients in the study including 130 patients from Youville, 109 from Glenrose and 89 from the Auxiliary Hospital. In each hospital there were more females than males and overall 215 females and 113 males were studied (Table 2).[1]

---

1. This sex distribution is congruent with the findings in the literature, namely, that there are more elderly women than men in hospitals. In Alberta, for example, at December 31, 1980, 62% of the total Auxiliary Hospital population (which is predominantly elderly) was female (Alberta Hospitals and Medical Care, 1982).

As is shown in Table 3 the mean age of patients was 79 years (the range was from 65 to 104 years). The mean age of patients at the Auxiliary Hospital was higher than at either Youville or Glenrose. Patients at Glenrose were, on the average, the youngest in the study. T-tests indicated that the differences among the ages of the patients in the three hospitals were statistically significant (at the .05 level).

Table 4 presents the means and standard deviations of the individual patient characteristics discussed in the following. Two-tailed t-tests were used to identify whether there were significant differences between the hospitals on each variable.[1] Some of the variables were measured when the patients were interviewed on admission and others were measured when the patients were interviewed on discharge.

In response to the question, "For your age, would you say that in general your health is poor, fair, good, very good, excellent?", respondents on the average replied that they perceived their health to be good. Patients at Glenrose rated their health to be better than patients at Youville, who in turn perceived their health to be slightly better than patients at the Auxiliary Hospital. T-tests indicated that there was a significant difference between the ratings made by patients at Glenrose and Youville and between patients at Glenrose and the Auxiliary Hospital, but not between patients at Youville and the Auxiliary Hospital.

---

1. Unless otherwise stated, a significant difference between two hospitals refers to a difference between two means which was significant at the .05 level.

Across all hospitals, on the average, respondents perceived their future economic situations to be secure. In response to the question, "How well do you think the amount of money you have will take care of your needs in the future?" (1 = poorly, 2 = fairly well, 3 = very well), respondents on the average replied fairly well. Patients at the Auxiliary Hospital perceived themselves to be the most financially secure and patients at Youville the least. (Differences between hospitals on this variable were not, however, significant.)

At reassessment, patients in the three hospitals were, on the average, very satisfied with the care they had received while in the hospital. On a scale of 0 (very dissatisfied) to 10 (very satisfied), the average rating was 9. Patients at Glenrose were most satisfied with the care they had received and patients at the Auxiliary Hospital were the least satisfied. There was a significant difference between patients' ratings of satisfaction at Glenrose and Youville and between patients' ratings at Glenrose and the Auxiliary Hospital. Although patients at Youville rated their satisfaction with care slightly higher than patients at the Auxiliary Hospital, the difference was not significant.

About one third of the patients in the study were currently married. The rest were either widowed, divorced, separated or single. Most patients stated that their spouse had visited them in the hospital frequently and as often as they wanted (no significant differences between the hospitals). The majority of patients had children who lived close enough to visit them. Patients at Youville had more children living close by than patients at Glenrose or the Auxiliary Hospital. There was a significant difference on this variable between

respondents at Youville and Glenrose and between respondents at Youville and the Auxiliary Hospital, but not between respondents at Glenrose and the Auxiliary Hospital. Most patients stated that their children had visited them often while they had been in the hospital. Significantly more patients at Glenrose than at the Auxiliary Hospital were satisfied with the frequency of their childrens' visits, but there were no significant differences between patients' satisfaction with the frequency of their childrens' visits at Glenrose and Youville and between patients at Youville and the Auxiliary Hospital.

The majority of patients had relatives and friends that lived close enough to visit. Patients at Youville reported having the most relatives that lived close enough to visit and patients at the Auxiliary Hospital reported the least. There was a significant difference between Youville and the Auxiliary Hospital, and between Glenrose and the Auxiliary Hospital on this variable, but not between Glenrose and Youville. Patients at Glenrose reported having the most friends that lived close enough to visit and patients at the Auxiliary Hospital the least. There was a significant difference between all of the hospitals on this variable.

There were no significant differences among the hospitals on the reported frequency of relatives' visits and the satisfaction of respondents with the frequency of relatives' visits. There was a significant difference, however, between hospitals on the reported frequency of friends' visits. Patients at Glenrose reported the highest frequency of friends' visits and patients at the Auxiliary Hospital reported the lowest frequency. Nevertheless there were no

significant differences between hospitals on patients' satisfaction with the frequency of friends' visits.

Most patients visited with other patients in their ward. Patients at Glenrose and the Auxiliary Hospital visited with other patients in the ward significantly more frequently than patients at Youville. There was no significant difference in the frequency of visiting between patients at Glenrose and the Auxiliary Hospital.

The majority of respondents reported that they had someone in whom they could trust and confide. Significantly more patients at Youville and Glenrose reported having someone in whom to trust than at the Auxiliary Hospital. There was no significant difference on this variable between respondents at Youville and Glenrose, although slightly more patients at Glenrose reported having a confidant than at Youville.[1]

In summary, the assessment of individual patient characteristics showed that there were significant differences in perception of own health and satisfaction with care between patients at Glenrose and the Auxiliary Hospital and between patients at Glenrose and Youville, but not between patients at Youville and the Auxiliary Hospital (patients at Glenrose, on both measures, had the most positive perceptions and patients at the Auxiliary Hospital, the least positive). The findings were mixed with regard to the various indicators of social support. Patients at Youville had significantly more children living close

---

1. Difference-of-proportions tests were used to establish whether there were significant differences between the hospitals on this variable.

enough to visit than patients at Glenrose and the Auxiliary Hospital, patients at Glenrose had significantly more friends living close enough to visit than patients at Youville and the Auxiliary Hospital, and patients at Youville had significantly more relatives (in addition to children) living close enough to visit than patients at the Auxiliary Hospital. Significantly more patients at Glenrose than at the Auxiliary Hospital were satisfied with the frequency of their childrens' visits but no significant differences between the hospitals were noted with respect to reported satisfaction with frequency of relatives' and friends' visits.

Description of Organizational Characteristics

This section describes the organizational characteristics, that is, the structural and contextual dimensions, of the hospitals studied. Information pertaining to the organizational characteristics was obtained from Administrators and Directors of Nursing at each hospital and from the questionnaires which were distributed to a random sample of nurses at each hospital. The number of completed nursing questionnaires, by hospital, is shown in Table 5.

Structural Dimensions. The various structural dimensions which were assessed are shown in Table 6. As with the individual patient characteristics, these variables are broken down by hospital type.[1]

The number of direct-care occupational specialties existing in the hospital was used as an indicator of complexity. Across all hospitals,

---

1. As with the individual patient characteristics, unless otherwise stated, a significant difference between two hospitals (identified using two-tailed t-tests) refers to a difference between two means which was significant at the .05 level.

the average number of direct-care occupational specialties employed was 10.6. The number of occupational specialties was highest at Glenrose and lowest at the Auxiliary Hospital.[1]

The frequency with which patients and/or frequency with which patients' families attended interdisciplinary conferences were used as indicators of centralization. There were significant differences between Youville and the other two hospitals on this variable with the most patients and families attending conferences at Youville and the least number of patients and families attending conferences at the Auxiliary Hospital. The average number of conferences attended per week by patients and families did not differ significantly for patients at Glenrose and the Auxiliary Hospital.

A second indicator of centralization was nurses' perception of the extent of their participation in hospital decision-making. There were no significant differences between the hospitals on nurses' perception of their freedom in deciding nursing interventions without asking physicians. With regard to nurses' perception of their freedom in deciding nursing interventions without asking Unit Supervisors, there was a significant difference among nurses' perceptions between Youville and the Auxiliary Hospital and between Glenrose and the Auxiliary Hospital. Nurses at both Youville and Glenrose perceived themselves as having more freedom from Unit Supervisors than nurses at the Auxiliary Hospital.

---

1. Significant tests cannot be calculated for this measure because the unit of analysis is the hospital and therefore there is no variation at either Youville or Glenrose.

Coordination was measured in two ways. First, the frequency with which interdisciplinary staff case conferences were held to discuss the patient's treatment was recorded. The differences between all hospitals on this variable were significant with more conferences being held at Youville than at Glenrose. Conferences at the Auxiliary Hospital were rare.

Second, coordination was assessed by recording the frequency with which nursing staff contacted the patient's family by phone to discuss the patient's treatment and the frequency with which nursing staff contacted the family to discuss treatment while the family was visiting.[1] Across all hospitals, nursing unit supervisors reported that, for the majority of patients, nursing staff contacted the patient's family by phone and also while they were visiting, 1-3 times during the patient's period of hospitalization. Nursing staff at the Auxiliary Hospital contacted family by phone and while they were visiting more frequently than staff at Youville or Glenrose. Nurses at Glenrose contacted patients' families the least number of times. There was a significant difference in frequency of nursing staff contact with family by phone between Youville and Glenrose and between the Auxiliary Hospital and Glenrose, but not between Youville and the Auxiliary Hospital. There was a significant difference in frequency of nursing staff contact with family while family was visiting between Glenrose

---

1. As these variables were recorded using an ordinal scale (1, 1-3, 4+ contacts), difference-of-proportions tests were used to establish whether there were significant differences between the hospitals.

and the Auxiliary Hospital and between Youville and the Auxiliary Hospital, but not between Glenrose and Youville.

Professionalization was measured in four ways. First, professionalization was measured by the presence of physicians in the hospital with specialization in geriatric medicine. Youville was the only hospital which employed physicians with specialization in geriatrics. The second measure of professionalization was the percentage of nurses in the hospital with Registered Nurse qualification. Youville employed the highest percentage of Registered Nurses and the Auxiliary Hospital the least. A third measure consisted of the number of Registered Nurse Effective Hours per Patient per Day. Youville had the highest number of RN F.T.E. Nursing Hours per Patient per Day, followed by Glenrose and then the Auxiliary Hospital. Fourth, professionalization was measured by the ratio of patients to Registered Nurses. The patient to RN ratio was lowest ("best") at Youville, followed by Glenrose and then the Auxiliary Hospital. Differences between hospitals on all of these measures were statistically significant.

Contextual Dimensions. The various contextual dimensions which were assessed are shown in Table 7.[1]

The first contextual dimension was hospital size which was defined as the number of beds. Youville was the smallest hospital with 194 beds and the Auxiliary Hospital the largest hospital with 307 beds

---

1. A significant difference between two hospitals is defined as occurring when the difference between two means is significant at the .05 level (two-tailed t-tests were used).

(this figure was the average number of beds in the four Auxiliary Hospitals). Glenrose had 223 beds.

Technology was assessed by recording, for each patient, length of stay and the number of diagnostic services, consultations, medications, attending physician visits and amount of therapy received during the period of hospitalization.

At Youville, the average number of diagnostic services received by patients per week was 10, compared with 2 at Glenrose and 1 at the Auxiliary Hospital. All differences between hospitals were significant on this variable. As with diagnostic services, the differences in amount of therapy received by patients at the three hospitals were all significant. Patients at Glenrose received on the average the greatest amount of therapy per week while patients at the Auxiliary Hospital received the least. The average number of consultations received per week by patients also varied between hospitals. Patients at Youville received the highest number of consultations per week, and patients at the Auxiliary Hospital received the lowest number per week.

The average number of internal and topical medications received per day by patients also varied across hospitals. Patients at Youville received the highest number of internal medications per day. There was a significant difference between the number of internal medications received per day by patients at Youville and the Auxiliary Hospital, but not between patients at Glenrose and the Auxiliary Hospital or between patients at Youville and Glenrose. The highest number of topical medications received per day by patients was at the Auxiliary Hospital and the lowest number received per day by patients was at

Glenrose. While Youville and the Auxiliary Hospital did not differ significantly on this variable, Glenrose was significantly lower than both. When both internal and topical medications were considered together, patients at Youville received the highest average number per day and patients at the Auxiliary Hospital the lowest. Only the difference between the average number of all medications received by patients per day between Youville and the Auxiliary Hospital, however, was significant.

The average number of visits that a patient received from his/her attending physician per week varied for each hospital. Patients at Youville received the highest number of attending physician visits per week (4.3 visits) and patients at the Auxiliary Hospital received the lowest number per week (0.5 visits). (All differences between hospitals were significant.)

The mean length of stay for all patients was 41.3 days. Patients at the Auxiliary Hospital stayed significantly longer than patients at Youville and Glenrose. The difference between the average length of stay of patients at Glenrose and Youville was statistically insignificant.

The third contextual dimension assessed in this study (in addition to size and technology) was the organizational climate of the hospital. This characteristic was assessed by asking nurses about their job satisfaction, perception of the level of stress on their unit and perception of the adequacy of the material facilities at the hospital. In addition, Nursing Unit Supervisors/Head Nurses were asked to rate their staff's feelings towards the patient during the latter's stay in hospital.

There were no significant differences between hospitals on many of the aspects of job satisfaction which were investigated - nurses' satisfaction with the opportunity their job allows them to fully use their skills and abilities, the feeling of accomplishment they get from the work they are doing, the opportunity their job allows them to do important and worthwhile things, satisfaction with kind of work done, satisfaction with present supervisor, satisfaction with the doctors with whom they normally work and satisfaction with present salary. There were however some signficant differences in nurses' job satisfaction among the hospitals. For example, nurses at Youville and Glenrose both differed significantly from nurses at the Auxiliary Hospital on reported satisfaction with workload. Nurses at Youville and Glenrose were both more satisfied. Nurses at Youville reported significantly more satisfaction with the physical conditions of their workplace than nurses at Glenrose and the Auxiliary Hospital. Nurses at Glenrose were significantly less satisfied with their workplace than nurses at the Auxiliary Hospital. Nurses at Youville were significantly less satisfied with the types of patients with whom they had to deal than nurses at Glenrose or the Auxiliary Hospital. Nurses at Glenrose were significantly more satisfied with their co-workers than nurses at the Auxiliary Hospital.

As with job satisfaction, on many of the aspects of job stress - the second measure of organizational climate - there were no significant differences between the hospitals. For example, all nurses perceived there to be a similar amount of stress resulting when nursing staff had insufficient resources to do all the things that should be

done, when there were personality conflicts among nursing staff and when patients' behaviours were troublesome.

There were, however, some significant differences between hospitals on nurses' perception of stress. For example, nurses at Youville perceived significantly more stress to result when physicians did not communicate well with the nursing staff than nurses at the Auxiliary Hospital or Glenrose. (As noted earlier, physicians are more involved with patients at Youville.) Youville nurses perceived poor communication between physicians and nurses as occurring significantly more frequently on their units than nurses at the Auxiliary Hospital. Nurses at Glenrose perceived physicians to be unavailable when they were wanted significantly more frequently than nurses at the Auxiliary Hospital. Nurses at Youville perceived there to be more stress associated with this situation than nurses at Glenrose or the Auxiliary Hospital. Nurses at Youville perceived there to be more stress associated with having to try to satisfy conflicting demands of various people than nurses at Glenrose. Youville nurses perceived that they were caring for elderly people significantly more frequently than nurses at Glenrose or the Auxiliary Hospital. Nurses at both Youville and the Auxiliary Hospital perceived that they were caring for patients who were ill with poor prognoses and had troublesome behaviours significantly more frequently than nurses at Glenrose. There were no significant differences between Youville and the Auxiliary Hospital on nurses' perception of the frequency with which they were caring for patients who were ill and with poor prognoses.

Nurses' perception of the third indicator of the internal environment - the adequacy of the material facilities at the hospital - indicated that there were signficant differences between the hospitals. Nurses at Youville rated the general physical plan and layout of their hospital significantly more positively than nurses at Glenrose and the Auxiliary Hospital. The ratings made by nurses of the available space and beds, equipment and supplies were significantly more positive at Youville than at the Auxiliary Hospital. Only the ratings made by Youville nurses of the available space and beds were significantly more positive than those made by Glenrose nurses. Glenrose nurses rated the available supplies significantly better and the available space and beds significantly poorer than nurses at the Auxiliary Hospital. The therapeutic services available for patients and the general financial condition of the hospital were not rated significantly differently by nurses at any of the hospitals.

The final measure of the internal environment was nurses' feelings towards the patients in the study. As is shown in Table 7, Head Nurses/Unit Supervisors across all hospitals rated their staff's feelings towards the patient during the latter's period of hospitalization very positively. Although Head Nurses at Glenrose rated their staff's feelings towards patients slightly more positively than Unit Supervisors at Youville, who in turn, assessed their staff's feelings towards patients to be slightly more positive than Unit Supervisors at the Auxiliary Hospital, the differences among hospitals were not significant.

Description of Dependent Variables

In this study, the dependent variable was health status of hospitalized elderly persons at time of discharge (or at eight weeks after admission). Three aspects of health were assessed - daily, cognitive and affective functioning. Pearson correlation coefficients among the three dependent variables are shown in Table 8. The coefficients were .48, .66 and .68 and were all significant at the .001 level. The relatively high degree of correlation among the three measures of health status was expected since presumably all variables measured various dimensions of the same concept (health). Nevertheless in as much as the correlations were of only moderately strong magnitude, it cannot be said that the variables were redundant measures of exactly the same thing.

The level of functioning of patients on discharge (with the exclusion of the patients who died [N=20, see Table 10]), in the three types of hospitals is shown in Table 9. On each measure, the average level of functioning of patients at Glenrose was higher than at the other two hospitals. At the Auxiliary Hospital, the average level of functioning of patients, on all measures, was the lowest.[1] Differences in patients' average scores between Glenrose and Youville and between Glenrose and the Auxiliary Hospital were all significant (at the .05 level). The differences between patients' average scores on cognitive

---

1. These objective findings are in accordance with the interviewers' subjective impressions of the functioning of the patients in the different hospitals. Auxiliary patients generally seemed to be more frequently confined to bed than patients in Glenrose or Youville, more confused and less able to interact with others.

and affective functioning at Youville and the Auxiliary Hospital failed to reach statistical significance (at the .05 level).[1]

The pattern of differences found among the hospitals with respect to patients' levels of functioning on discharge corresponded closely to that found on patients' admission to the hospitals (Table 11). With the exclusion of the patients who died, the average daily and cognitive functioning scores of patients on admission at Glenrose were significantly higher than the average scores of patients at Youville and the Auxiliary Hospital. Youville patients also scored significantly higher on daily and cognitive functioning than patients at the Auxiliary Hospital. The average affective functioning score of patients at Glenrose was significantly higher than at Youville. The differences between the average affective functioning scores of patients at Glenrose and the Auxiliary Hospital and between patients at Youville and the Auxiliary Hospital did not, however, reach statistical significance (at the .05 level).[2]

As patients' levels of functioning on the three dependent variables were assessed on admission, it was possible to test whether there was a significant difference between the three hospitals on mean

---

1. When the patients who died during the study were included in the calculations, the pattern of hospital differences remained unchanged except that on each measure of functioning, the differences among patients' scores at the three hospitals were significant (at the .05 level).

2. When the patients who died were included in the calculations, the pattern of hospital differences remained unchanged, except that the difference between the average affective functioning score of patients at Glenrose and the Auxiliary reached statistical significance (at the .05 level).

level of functioning of patients on admission and discharge. This comparison is shown in Table 12. Because the same individuals were measured before and after the period of hospitalization, paired-sample t-tests were used. With the exclusion of patients who died, the results indicated that across all the hospitals, patients had significantly improved on the measures of daily and affective functioning. For the cognitive functioning measure, although the difference between the mean score on admission and discharge was not significant (at the .05 level), patients tended to have improved at reassessment.[1]

When the patients in the three types of hospitals were considered separately, a similar picture emerged.[2] For patients at Youville, there was a significant difference between mean scores on admission and discharge for all measures of functioning. Patients improved on the daily and affective functioning measures and deteriorated on the measure of cognitive functioning. For patients at Glenrose, there was a significant improvement between the mean scores on admission and discharge for all the measures of functioning. For patients at the Auxiliary Hospital, there was a significant difference between the mean

---

1. When the patients who died during the study were included in the calculations, the pattern of hospital differences remained unchanged, except that at reassessment patients tended to have deteriorated, rather than improved on cognitive functioning. (Again, however, this difference was not significant.)

2. As the previous analysis of the difference between levels of functioning on admission and discharge indicated that a similar pattern of findings emerged when either (1) all patients or (2) only those patients who were living at time of reassessment were considered, it was decided to only discuss the findings, by hospital, which were based on patients who were living at time of reassessment.

scores on admission and discharge for daily and cognitive functioning. On both measures, patients' functioning had improved at time of reassessment. For affective functioning, although there tended to be improvement at reassessment, the change was not statistically significant.

In summary, during the study period, the three hospitals generally admitted patients with significantly different levels of functional ability. On all measures, patients admitted to Glenrose scored highest and patients admitted to the Auxiliary Hospital scored lowest on two of the three measures of health. On discharge, patients at Glenrose again scored highest and patients at the Auxiliary Hospital scored lowest. Over the period of hospitalization, patients at Glenrose significantly improved on all the measures of functioning. Patients at Youville and the Auxiliary Hospital significantly improved on two of the three measures of health. Glenrose, therefore, seems most able to generally effect a positive change in health status.

Multiple Regression Results[1]

To examine the separate and combined effects of individual patient and organizational characteristics on the dependent variables,

---

1. As has been previously stated, regressions were performed with the exclusion of the patients who died to avoid having this small number of patients (N=20) possibly biasing the findings (patients who died received extreme scores - zero's - on the dependent variables). Supplementary analyses (not reported in this study) based on all patients and using as a predictor a dummy variable for died/alive patients indicated that greater variance in the dependent variables was able to be explained and the dummy variable for died/alive emerged as a significant predictor.

correlations were first calculated between all the independent variables and the three dependent variables. The individual patient and organizational characteristics which correlated at the .05 level with each dependent variable are shown in Tables 13 and 14.

Individual patient characteristics which were significantly positively correlated with the three dependent variables were patient's satisfaction with the care received in hospital, the number of friends that the patient had that lived close enough to visit, the frequency with which the patient's friends visited, the frequency with which the patient visited other patients in the ward and the availability of a confidant. Age of patient was significantly negatively correlated with each measure of functioning at discharge.

A number of organizational characteristics were significantly correlated with daily, cognitive and affective functioning. Significantly strong associations were found among all measures of functioning and aspects of organizational climate - nurses' job satisfaction, nurses' perception of their participation in decision making and the frequency with which nurses perceived potentially stressful situations to occur on their units. Strong associations were also found among the number of direct-care occupational specialties at the hospital (positive), the frequency with which nursing staff contacted the patient's family to discuss the patient's treatment (negative) and the three dependent variables.

The independent variables which correlated at the .05 level with each dependent variable were then entered into the regression equation for that dependent variable. For each dependent variable, separate regression analyses were performed with the organizational

characteristics and individual patient characteristics. To control for different initial levels of functioning on the dependent variables, the patient's level of functioning on admission was entered in each regression.

The results of regressing daily functioning at time of discharge on individual patient characteristics are presented in Table 15. The predictors of daily functioning identified using stepwise regression were: level of daily functioning on admission (positive effect), patient's satisfaction with care received in the hospital (positive effect), availability of a confidant (positive effect) and patient's age (negative effect). Together, these variables explained 51% of the variance in daily functioning at discharge. After controlling for the effect of level of daily functioning on admission, individual patient characteristics explained an additional 5% of the variance in daily functioning.

The results of regressing cognitive functioning at time of discharge on the individual patient characteristics are presented in Table 16. Patient's age was again found to be negatively related to the dependent variable. The frequency with which the patient visited with the patients in the ward was positively related to level of functioning. Together with level of cognitive functioning on admission these variables explained 72% of the variance. After controlling for the effect of level of cognitive functioning on admission, individual patient characteristics explained only an additional 1% of the variance in cognitive functioning.

Table 17 shows the results of regressing affective functioning on the individual patient characteristics. Four variables emerged as

predictors: level of affective functioning on admission (positive effect), patient's satisfaction with care received in the hospital (positive effect), the number of friends that the patient had that lived close enough to visit (positive effect) and the patient's perception of his/her own health (positive effect). Together these variables accounted for 41% of the variance in affective functioning at time of discharge. After controlling for the effect of level of affective functioning on admission, individual patient characteristics explained an additional 7% of the variance in affective functioning.

Regressing each of the dependent variables on the individual patient characteristics resulted in several different indicators of one characteristic - the patient's social support system - emerging as consistent predictors. The availability of a confidant was positively related to daily functioning while the frequency with which the patient visited other patients in the ward was positively related to cognitive functioning and the number of friends that the patient had that lived close enough to visit was positively related to affective functioning. All these indicators of social support do, however, share a common characteristic - they are all quantitative indicators of an individual's social support system, that is, indicators of the number and frequency of social relationships. In addition to the social support indicators, patient's age was negatively related to daily and cognitive functioning but unrelated to affective functioning. Patient's satisfaction with care received in the hospital was positively related to daily and affective functioning but did not emerge as a predictor of cognitive functioning. Patient's perception of own health was only positively related to affective functioning.

In summary, when only individual patient characteristics were considered as explanatory variables, R^2 = .51 for daily functioning, R^2 = .72 for cognitive functioning and R^2 = .41 for affective functioning. The individual patient characteristic which generally explained the most variance was patient's satisfaction with care.

Table 18 shows the multiple regression results for the organizational determinants of daily functioning. Fifty-eight percent of variance was explained using only organizational characteristics and level of daily functioning on admission as predictors. Strong positive associations were found between level of daily functioning on admission, nurses' perception of the frequency with which there are patients who are ill and with poor prognoses (the lower the frequency the higher the patient's level of functioning) and the average number of attending physician visits received by each patient per week. Negative associations were found between percentage of nurses with RN qualification, patient's length of stay and number of topical medications received per day and daily functioning. After controlling for the effect of level of daily functioning on admission, organizational characteristics explained an additional 12% of the variance in daily functioning.

The regression results of cognitive functioning on organizational characteristics are presented in Table 19. Seventy-four percent of the variance in cognitive functioning at time of discharge was explained by level of cognitive functioning on admission (positive effect), nurses' perception of the stress resulting when there are personality conflicts among nursing staff (the less the perceived stress, the better the patient's functioning) and nurses' perception of the adequacy of the

general financial condition of the hospital (positive effect). After controlling for the effect of level of cognitive functioning on admission, organizational characteristics explained an additional 3% of the variance in cognitive functioning.

When affective functioning at time of discharge was regressed on the organizational characteristics, 39% of the variance was explained (Table 20). Apart from level of affective functioning on admission, the variables which emerged as predictors were nurses' perception of the frequency with which patients' behaviors are troublesome (the less frequent, the better the patient's functioning) and the frequency with which nursing staff phoned the patient's family to discuss the patient's treatment (negative effect). After controlling for the effect of level of affective functioning on admission, organizational characteristics explained an additional 5% of the variance in affective functioning.

As with the individual patient characteristics, regressing each of the dependent variables on the organizational characteristics resulted in only one characteristic - organizational climate - emerging as a consistent predictor. Like social support, different indicators of this characteristic were related to each of the dependent variables.

Nurses' feelings towards the patient and nurses' perception of the frequency with which there were patients who were ill and with poor prognoses were predictors of daily functioning. The more positive nurses felt towards the patient and the lower the frequency with which they perceived there to be patients who were ill and with poor prognoses, the higher the patient's level of daily functioning. Nurses' perception of the adequacy of the general financial condition

of the hospital and the stress resulting when there were personality conflicts among nursing staff were related to cognitive functioning. The more adequate nurses perceived the general financial condition of the hospital and the less they perceived stress to result from personality conflicts, the higher the patient's level of cognitive functioning. Nurses' perception of the frequency with which patients' behaviours were troublesome was related to affective functioning - the lower the perceived frequency, the higher the patient's level of affective functioning.

These relationships, however, need to be interpreted cautiously due to the high correlations (> .8) among some of the indicators of organizational climate.[1] For example, nurses' perception of the frequency with which there were ill patients with poor prognoses was highly positively correlated with their perception of the stress associated with having a consistently heavy workload, insufficient resources to do all the things that should be done, inability to satisfy conflicting demands, frequency of personality conflicts among staff and frequency of patients with troublesome behaviors. Further, this measure of organizational climate was highly positively correlated

---

1. In this study, even though some of the independent variables were highly correlated, they were all entered as possible predictors. It is possible, therefore, that a variable that would have been a significant predictor was eliminated because of its high correlation with another variable.

with two measures of nurses' job satisfaction - satisfaction with co-workers and physicians. The less stress associated with aspects of work and the less frequently that nurses perceived potentially stressful events to occur, the more satisfied nurses tended to be with their co-workers and the physicians with whom they normally worked. As another example of collinearity, nurses' perception of the stress resulting when there were personality conflicts among nursing staff was highly positively related to their perception of the frequency with which personality conflicts occurred, their satisfaction with the types of patients with whom they had to deal and their perception of the stress resulting when they had to try to satisfy conflicting demands. Further, the less satisfied nurses were with their salaries and the physical conditions of the hospital in which they worked, the more stress they perceived to result from personality conflicts among nursing staff. In summary, this maze of correlations indicates that the less stress nurses associate with various aspects of their work, the lower the frequency of occurrence of potentially stressful events, and the more positive the attitude of nurses towards the patients and their workplace, the higher the level of patient's functioning.

Measures of technology were related to daily functioning, but not to any of the other dependent variables. The higher the average number of attending physician visits per week, the less the number of topical medications received by patient per day and the shorter the patient's length of stay, the higher the patient's level of daily functioning. A measure of the extent of coordination in the hospital was related to affective functioning - the lower the frequency with which nursing staff phoned the family to discuss the patient's treatment, the higher

the patient's level of functioning. The percentage of nurses at the hospital with RN qualification was found to be negatively related to daily functioning. This variable, however, was also highly correlated with other organizational characteristics. It was found to be highly correlated with aspects of stress. The higher the percentage of RNs, the more stress nurses perceived as resulting when physicians were not available when they were wanted and when physicians did not communicate well with the nursing staff.

In summary, when only organizational characteristics were considered as explanatory variables, R^2 = .58 for daily functioning, R^2 = .74 for cognitive functioning and R^2 = .39 for affective functioning. For each dependent variable, the best predictors, after level of functioning on admission, were the various measures of organizational climate.

Comparison of the separate regressions of the dependent variables on the individual patient characteristics and organizational characteristics indicated that for daily functioning, organizational characteristics explained slightly more of the variance than individual patient characteristics. After controlling for level of daily functioning on admission, individual patient characteristics explained an additional 5% and organizational characteristics an additional 12% of the variance in daily functioning. For cognitive and affective functioning, however, the additional amount of variance explained by the organizational and individual patient characteristics was very similar and so it was not possible to definitively conclude which set was the better predictor. For cognitive functioning, after controlling

for level of cognitive functioning on admission, individual patient characteristics explained an additional 1% and organizational characteristics an additional 3% of the variance in cognitive functioning. For affective functioning, after controlling for level of affective functioning on admission, individual patient characteristics explained an additional 7% of the variance and organizational characteristics an additional 5% of the variance in affective functioning.

The next three tables (Tables 21 to 23) present the results of regressing daily, cognitive and affective functioning on the variables which emerged as significant predictors from the separate regressions of each dependent variable on the (1) individual patient characteristics and (2) organizational characteristics.

As Table 21 shows, 58% of the variance in daily functioning at discharge was explained by considering the two sets of predictors together (46% of the variance however was explained by level of daily functioning on admission.) Only one individual patient characteristic entered the regression equation - availability of a confidant (positive effect). All the organizational variables which had emerged as predictors from the separate regression of daily functioning on organizational characteristics remained predictors, with the exception of the average number of topical medications received by patient per day (in the separate regression, this variable had the lowest standardized regression coefficient). Therefore, for daily functioning, when the individual patient and organizational characteristics were entered together, individual patient

characteristics were more likely to become redundant than organizational characteristics.

In the regression of cognitive functioning on the combined set of predictors (Table 22), none of the individual patient characteristics emerged as predictors. The organizational characteristics identified as predictor variables from the separate regression remained predictors and hence the amount of variance explained using the combined set of predictors was the same as with using only organizational characteristics (74%). Clearly, as with daily functioning, when individual patient and organizational characteristics were put into the same regression equation for cognitive functioning, the organizational characteristics were the stronger variables as they caused all the individual patient characteristic predictor variables to become redundant.

Tables 23 shows that 41% of the variance in affective functioning at time of discharge was explained by considering the two sets of predictors together (34% of the variance however was explained by level of affective functioning on admission.) Individual patient characteristics which emerged as positive predictors were patient's satisfaction with care received in the hospital and number of friends that the patient had that lived close enough to visit. One organizational characteristic - nurses' perception of the frequency with which patients' behaviors were troublesome - remained a predictor. Patient's perception of own health and frequency with which nursing staff phoned patient's family to discuss patient's treatment became redundant with the other variables and dropped out in the combined regression. For affective functioning, in contrast to daily and

cognitive functioning, individual patient characteristics seemed to be slightly stronger predictors as they were more likely to remain predictors in the combined regression.

In summary, when both individual patient and organizational characteristics were considered as explanatory variables, R^2 = .58 for daily functioning at time of discharge (R^2 = .51 with only individual patient characteristics and R^2 = .58 with only organizational characteristics). For cognitive functioning at time of discharge, combining the two sets of predictors resulted in R^2 = .74 (R^2 = .72 with only individual patient characteristics and R^2 = .74 with only organizational characteristics). For affective functioning at time of discharge, combining the two sets of predictors resulted in R^2 = .41 (R^2 = .41 with only individual patient characteristics and R^2 = .39 with only organizational characteristics). As the amount of variance explained for each dependent variable by combining the two sets of predictors was about the same as that explained by only organizational characteristics or only individual patient characteristics, it appears that each set of predictors is explaining essentially the same portion of variance in the dependent variables.

To determine the relative influence of the individual patient and organizational characteristics that were identified as predictors from the above combined regressions (Tables 21 to 23) each dependent variable was regressed on:

(1) patient's level of functioning on admission,

(2) patient's level of functioning on admission and the set of individual patient characteristics which emerged as predictors,

(3) patient's level of functioning on admission and the set of organizational characteristics which emerged as predictors and

(4) patient's level of functioning on admission and the combined set of individual patient and organizational characteristics which emerged as predictors.

For each dependent variable, the amount of variance explained by the variables in each regression was compared. These results are presented in Tables 24 to 26.

For daily functioning (Table 24), individual patient characteristics, when entered with level of daily functioning on admission, added 2% to the explained variance. Organizational characteristics, when entered with level of daily functioning on admission, added 11% to the explained variance. Entering both individual patient and organizational characteristics together, with level of daily functioning on admission, added 10% to the variance explained by the individual patient characteristics alone and 1% to the variance explained by the organizational characteristics alone.

For cognitive functioning (Table 25), organizational characteristics, when entered with level of cognitive functioning on admission, added 3% to the explained variance. As all the individual patient characteristics became redundant in the regression of cognitive functioning on the combined set of individual patient and organizational predictors, all the variance (74%) was explained by the organizational characteristics and level of cognitive functioning on admission.

For affective functioning (Table 26), individual patient characteristics, when entered with level of affective functioning on

admission, added 6% to the explained variance. Organizational characteristics, when entered with level of affective functioning on admission, added 3% to the explained variance. Entering both individual patient and organizational characteristics together, with level of affective functioning on admission, added 1% to the variance explained by the individual patient characteristics alone and 4% to the variance explained by the organizational characteristics alone.

In short, Tables 24 to 26 support the previous conclusion that organizational characteristics are slightly better predictors of daily and cognitive functioning and individual patient characteristics are slightly better predictors of affective functioning.

Summary

Stepwise multiple regression was used to analyze the separate and combined influence of the independent variables - organizational characteristics and individual patient characteristics - on the three dimensions of health status investigated in this study. The results of the separate regressions indicated that for daily functioning, organizational characteristics explained slightly more variance than individual patient characteristics, but for cognitive and affective functioning the amount of variance explained by both sets of characteristics was approximately the same. When the individual patient and organizational characteristics from the separate regressions were combined, organizational characteristics proved to be the stronger predictors for daily and cognitive functioning, and individual patient characteristics, the stronger predictors for affective functioning.

CHAPTER IV

DISCUSSION

Overview of Chapter

This study was designed to assess the influence of a variety of individual patient and organizational characteristics on three different dimensions of health status - daily, cognitive and affective functioning. In this chapter, the individual patient and organizational characteristics which best explained the measures of health status will be discussed. Further, the theoretical implications of the findings and the possible implications for providers of health care services to the elderly will be explored.

Discussion of Findings

This study investigated both the separate and combined effects of individual patient and organizational characteristics on health status at time of discharge of hospitalized elderly persons. The findings showed that, when considered separately, organizational characteristics better predicted daily functioning. However, the amount of variance explained in cognitive and affective functioning by the two sets of characteristics was about the same and so it was not possible to definitively state which set was the better predictor. When organizational and individual patient characteristics were combined to assess their joint influence on patient outcome, organizational characteristics emerged as the stronger predictors of daily and cognitive functioning and individual patient characteristics emerged as the stronger predictors of affective functioning.

Interestingly, when the two sets of predictors were combined to assess their joint influence, the amount of variance explained in each dependent variable did not increase substantially beyond that which was explained by the better set of predictors. This finding suggests that individual patient and organizational characteristics are explaining essentially the same portion of the variance in the dependent variables.

The implication of this finding, for improving patients' functioning, is that if a hospital scores low on the organizational characteristics that were found in the study to be positively related to patient outcome, and if these organizational characteristics are not amenable to change, health care providers could direct their attention towards improving individual factors (providing that they are amenable to change) found to be positively associated with health status. On the other hand, if patients score low on the individual characteristics that were found to be positively related to outcome, and if these individual characteristics are not amenable to change, attention could be directed towards improving the organizational characteristics found to be positively related to patient health status. The findings suggest that both strategies would result in higher patient outcome.

When the separate organizational and individual patient characteristics which had emerged as predictors for each dependent variable were combined, the amount of variance explained in the dependent variables ranged from 41% (for affective functioning) to 74% (for cognitive functioning). Clearly there are other variables that are related to patient outcome besides those that were measured in this

study.[1] A variable which may be related to health status at time of discharge that was not assessed in this study is the extent or severity of a patient's pathology. Health status at time of discharge may improve simply because the extent or severity of pathology decreases independently of individual patient and organizational characteristics. Alternatively, as patients were assessed on the average three days after admission, it might be that their level of functioning was abnormally low at this time due to their recent change in surroundings. After being in the hospital for a few weeks their level of functioning may have improved simply because they became used to their surroundings.

This study indicated that after controlling for level of functioning on admission, individual patient and organizational characteristics together explained only an additional 3 to 12% of variance for each dependent variable. It appears therefore that health care providers are quite limited in their ability to influence the health status of patients by manipulating the variables identified in this study. The major portion of variance in patient's health status at time of discharge was explained by patient's level of health status

---

1. Other researchers also have not been able to account for a high portion of the variance in patient outcome. Flood and Scott (1978), for example, after controlling for health status, explained less than 1% of the variance in outcomes of patients following surgery.

on admission.[1] This variable tends to be outside of control of health care providers except, of course, those who are in charge of the admission of patients. This finding should not, however, lead to pessimism and to a "do nothing" attitude. It should be remembered that the average age of patients in the study was 78 (range 65 to 104) and that over a relatively short period of hospitalization, health status of patients was improved. Given that the long-term trend for elderly persons with poor health tends to be downwards, these short-term improvements must be viewed as significant. Perhaps even maintenance (i.e., no change in health status) should be viewed as an accomplishment by health care providers.

Even though a large number of organizational and individual patient characteristics were measured in this study, very few became predictors of the dependent variables. Of the individual patient characteristics which were assessed, only two characteristics consistently emerged as predictors - social support and satisfaction with care. Of the organizational characteristics measured, only indicators of organizational climate, technology and professionalization consistently became predictors.

---

1. As patients at Glenrose were admitted at a higher level of functioning than patients at Youville or the Auxiliary Hospital, it is not surprising that Glenrose patients, therefore, had the highest average scores on discharge. The strong association between level of functioning on admission and level of functioning on discharge makes it dangerous to conclude that Glenrose is the 'best' hospital despite its having the highest average discharge scores.

The variables which did not emerge as predictors may lead to the conclusion that they are not important for patients' health status. This conclusion, however, could be dangerous for it might be that these excluded variables are closely related to the predictors or have an indirect rather than a direct effect on patient outcome. For example, path analysis shows that hospital type influences the individual patient and organizational predictors which in turn influence patient outcome (Appendix 19). This indicates that hospital type may well be having an indirect effect on the three dependent variables.

The individual patient and organizational characteristics which emerged as predictors of the various measures of health status have implications for health care providers. The finding that patient satisfaction with care was positively related to health status suggests the importance of the interpersonal encounter between the patient and the providers of care and the possibility that factors other than medical factors may affect the course of illness. The implication of this finding for providers of health care services is that to effect a high level of functioning on discharge, attempts should be made to identify the determinants of patient's satisfaction and where possible accommodate the unique needs of patients so that they feel more satisfied with their care. (As direction of causality could not be determined, it may be, however, that better health status leads to higher feelings of satisfaction with care.) Although it was not the intent of this study to investigate the determinants of patient's satisfaction with care, previous research indicates that patient's satisfaction is a function of many variables including satisfaction with outcome, the quality of the doctor-patient relationship, patient

expectation and the continuity of the care received by the patient (Woolley et al. 1978). It is interesting to note that at Glenrose, where the functioning of patients on discharge was highest, patients were most satisfied with the care they had received and at the Auxiliary Hospital, where the functioning of patients on discharge was lowest, patients were least satisfied with the care they had received.

The finding that one of the measures of organizational climate - nursing staff's feelings towards patients - was positively related to patient's health status at time of discharge also suggests the importance of the interpersonal encounter between the patient and the providers of health care services. As nurses were asked only to rate their feelings towards patients along a negative - positive scale, information as to which characteristics the nurses liked or did not like about patients is unavailable. There is abundant research, however, which has investigated the types of patients which doctors and nurses prefer. Jaco (1979), for example, reports that studies indicate nurses divide patients into two categories - 'problem' and 'no problem' patients. 'Problem' patients are generally regarded as uncooperative, constantly complaining, argumentative, demanding and dependent. On the other hand, patients who are cooperative, trusting, obedient, uncomplaining and stoical are generally considered 'good' or 'no problem' patients.

The finding that aspects of the patient's social support system were positive predictors of outcome supports previous research that social interaction carries with it certain health benefits (Penning & Chappell, 1980; Stephens & Bernstein, 1984). As indicators of the quantitative aspects of the patient's social support system - the

number of friends that lived close enough to visit, the frequency of visiting with other patients in the ward and the availability of a confidant - were found to be important, this study is supportive of the literature that states that quantitative aspects of an individual's social support system are more important than qualitative aspects. The implication of this finding for health care providers is that, if they wish to effect a high level of patient functioning on discharge, they should aim to encourage patients to form social relationships within the hospital and assist them in maintaining previously established relationships. (Again, however, it may be that higher health status results in a patient forming more social relationships and having more contact with family and friends, rather than that more social relationships lead to higher health status.)[1] It is interesting to note that at Glenrose, where the functioning of patients on discharge was highest, more patients than at either Youville or the Auxiliary Hospital stated that they had a person in whom they could trust and confide. Glenrose patients also reported having significantly more friends that lived close enough to visit than either patients at Youville or the Auxiliary Hospital. Patients at both Glenrose and the Auxiliary Hospital visited with other patients in the ward significantly more frequently than patients at Youville.

Previous research had suggested (although not conclusively) that age is negatively related to health status. The results of the study

---

1. The cross-sectional nature of this study precludes conclusively establishing the direction of causality.

supported this finding - age had a negative net linear effect on both daily and cognitive functioning. The study also supported the often reported finding in the literature that patient's perception of own health is positively related to health status (Palmore & Luikart, 1972; Noelker & Harel, 1978; Penning & Chappell, 1980). Both the relationships between age and health status and between perceived health and health status, however, became redundant when the significant individual patient and organizational characteristics were combined to assess their joint influence on the dependent variables. This means that age and perceived health were not as strong predictors as organizational characteristics.

Of all the organizational characteristics measured, the only ones which consistently emerged as predictors of level of health status on discharge were the measures of organizational climate. Although different indicators of this concept were important for each dependent variable, in general, the findings indicated that the less stress that was perceived by nurses to be associated with various aspects of their work, the higher the patient's level of functioning on discharge. The implication of this finding for health care providers is that it is important to frequently monitor the feelings and concerns of nurses and attempt, where possible, to resolve or reduce the work-related

difficulties and stresses encountered by them.[1] Alternatively, of course, it may be that higher levels of patient functioning are less stressful for nurses. A circular relationship may result where patients with poor functioning raise the level of stress experienced by nurses which then compromises quality of care and leads to patients' having a lower level of health status. On the other hand, the opposite could also occur, where patients with high functioning lower the level of stress experienced by nurses which consequently raises quality of care and further improves patient functioning.

The relationship between stress/tension and patient outcome has been demonstrated in previous research. For example, Georgopoulos and Mann (1962), in one of the earliest pieces of research on the determinants of patient outcome, reported a negative relationship between quality of care measures and the level of tension among the hospital staff. Although it was not the intent of this study to investigate the determinants of stress, recent work by Leatt and

---

1. In general, the results of this study suggested that nurses at Glenrose perceived there to be generally less stress associated with various aspects of their work and less potentially stressful events occurring than nurses at Youville or the Auxiliary Hospital. The interviewers assessing the health status of patients in the hospitals reported that nurses at Glenrose tended to be more friendly, relaxed and willing to assist them to conduct their assessments than nurses at Youville. In some of the units at Glenrose the nurses commence work with a few minutes of exercises. A number of nurses stated that these exercises help them to better cope with the stress associated with their work.

Schneck (1985) indicates that various types of stress, including stress associated with workload, co-workers and patients, are related to different organizational dimensions. For example, the most significant factor associated with stress resulting from conflict amongst nursing staff was the extent to which there was perceived cooperation among nurses. Frequency of communcation among co-workers and the proportion of RNs on the nursing staff contributed to the explained variance in stress associated with treating chronically ill, elderly patients and having a heavy workload.

An interesting finding was the positive relationship between nurses' perception of the adequacy of the general financial condition of the hospital and patient's health status at time of discharge. The more adequate nurses perceived the general financial condition of the hospital, the higher the patient's level of functioning on discharge. A possible explanation of the finding is that when nurses perceive that the hospital is not financially secure, they feel that their jobs are in jeopardy and/or that there are insufficient resources to provide adequate care to patients and as a result provide less care to patients, who, in turn, function less well, thereby reinforcing their belief. That is, perception of inadequate financial conditions might lead to a self-fulfilling prophecy.

Some of the measures of technology were found to be related to patient's health status at time of discharge. A measure of the intensity of services provided to patients - the average number of attending physician visits received by the patient per week - was positively related to patient's level of daily functioning at time of

discharge.[1] This positive relationship between intensity of service and patient outcome is supportive of previous findings (Flood et al., 1979; Shortell & LoGerfo, 1981). The observed negative relationship between patient outcome and the average number of topical medications received by the patient per day was, at first, surprising. It had been expected, based on past research, that the number of medications per day (an indicator of the intensity of services provided to patients) would be positively related to patient outcome. However, it may be that lower health status leads patients to require more medications per day rather than the reverse.[2] A similar explanation may hold for the finding that a measure of the extent of coordination in the hospital (the frequency with which nursing staff contacted the patient's family by phone to discuss the patient's treatment) was negatively related to patient's outcome. A lower health status may necessitate nurses making more frequent contact with the family (past research [e.g., Scott, Forrest & Brown, 1976] had found a higher level of coordination in the hospital to be positively associated with patient outcome).[3]

---

1. Patients at Youville received a significantly higher number of attending physician visits per week than patients at Glenrose and the Auxiliary Hospital.

2. Patients at Youville and the Auxiliary Hospital received a significantly higher number of topical medications per day than patients at Glenrose and also had significantly lower levels of functioning on admission and discharge than patients at Glenrose.

3. Nursing staff at Youville and the Auxiliary Hospital contacted patients' families by phone to discuss patients' treatments significantly more frequently than nursing staff at Glenrose.

An unexpected finding was the negative relationship between one of the indicators of professionalization - the percentage of nurses with RN qualification - and patient outcome. At Glenrose, where there was a lower percentage of RNs than Youville (50% compared with 66%), patients had higher levels of functioning on all measures of health status at discharge. Previous research (e.g., Linn, 1977) had suggested that patient outcome was positively related to the percentage of RNs in the hospital. It was therefore expected that as the percentage of RNs on the nursing staff increased, the level of patient's functioning would increase. The comparison of the health status of patients at Glenrose and Youville indicated that this belief was not supported. If, however, the level of functioning of patients at Youville or Glenrose is compared with the functioning of patients at the Auxiliary Hospital, the results of this study are supportive of Linn's findings. Youville and Glenrose had a higher percentage of RNs than the Auxiliary Hospital (66% and 51% compared with 22%) and patients at both Youville and Glenrose generally scored at a higher level on the measures of functioning on discharge than patients at the Auxiliary Hospital.

It may be that, up to a certain point, a higher percentage of RNs on the nursing staff is associated with increase in the level of functioning of patients, but after a certain percentage is reached, continued increase in the percentage of RNs actually results in a lower level of functioning of patients. RNs (compared with RNAs and N.Atts) are generally more involved with administrative duties (for example, writing reports and participating in meetings) and it may be that when they constitute the major portion of the nursing staff patients actually receive less overall direct care. Lesser qualified nurses,

like RNAs and N.Atts, are generally more involved with the direct care of the patient, for example, with feeding, toileting and bathing. This interpretation of the findings has received some support in the literature. For example, Jaco (1979) has reported that as the status of heath care providers increases, the amount of time they spend in direct contact with patients decreases.

Some caution should, however, be exercised when interpreting the negative relationship between percentage of RNs and patient outcome because of the high correlation between percentage of RNs and measures of organizational climate. For example, the higher the percentage of RNs, the more stress nurses perceived as resulting when physicians were not available when they were wanted and when they did not communicate well with the nursing staff. Therefore, reducing the level of stress experienced by nurses may also effect positive health status.

Summary

The aim of this study was to examine both individual patient and organizational variables to determine their separate and combined effects on patient outcome. Patient outcome was defined in terms of health status at time of discharge (or at eight weeks after admission) and measured as levels of daily, cognitive and affective functioning. To maximize organizational diversity and individual patient differences, data were collected from patients in three different types of hospitals: a rehabilitation hospital (Glenrose), a specialized auxiliary hospital (Youville) and an auxiliary hospital. Multiple regression analysis showed that the most important predictor of all measures of functioning at time of discharge was the patient's level of functioning on each dimension at admission. When the dependent

variables were regressed separately on organizational and individual patient characteristics, the organizational characteristics explained slightly more variance in daily functioning. The amount of variance in cognitive and affective functioning explained by both sets of characteristics was approximately the same. When the individual patient and organizational characteristics identified as predictors from the separate regressions were combined, organizational characteristics proved to be the stronger predictors for daily and cognitive functioning, and individual patient characteristics proved to be the stronger predictors for affective functioning.

Health care providers aiming to improve levels of daily and cognitive functioning of patients at discharge should, most importantly, seek to reduce the level of stress that is perceived by nurses to be associated with various aspects of their work and the frequency of potentially stressful events, increase the positive feelings nurses have towards the patients and their workplace and increase the average number of attending physician visits received by the patient per week. To improve affective functioning, health care providers should, most importantly, seek to find ways to make patients feel more satisfied with the care they are receiving in the hospital and reduce the frequency of occurrence of work-related events that are perceived as stressful by nurses.

For each dependent variable, after holding constant the explanatory effects of level of functioning on admission, individual patient and organizational characteristics explained only between 3 to 12% of additional variance. Clearly there are other factors besides those measured in this study that contribute to patient outcome.

Future Research

To further explain variance in patient's health status at time of discharge, future research might seek to identify the extent to which the nature and complexity of patient's pathology is related to health status. Patients with similar diagnoses and prognoses could be compared. Investigation of indirect effects may identify relationships between organizational and individual patient characteristics and patient outcome which previous research had found, but which did not emerge in this study. The regression of the individual patient and organizational characteristics which had emerged as predictors of the dependent variables on the dummy variables for hospital type suggested that hospital type may well be having an indirect effect on the measures of health status.

This study, being cross-sectional, did not allow direction of causality to be determined. Longitudinal research would help to clarify, for example, the relationship between social interaction and health status. A large number of people could be followed over a significant portion of their adult years and data pertaining to their health status and social interaction collected from them periodically. A randomized experimental design in which a group of elderly persons had been randomly allocated to a variety of hospitals (such as Youville, Glenrose and Auxiliary Hospitals) would allow one to say with the most certainty that any variation in the health status of patients across hospitals was likely to be due to the hospital's programs (e.g. services and modes of treatment).

Monitoring the functional abilities of the patients in this study over a longer period of time would provide information about the

long-term effects of treatment. It may be that patients from one type of hospital are more likely to be readmitted than patients from another or that patients' functional abilities, even though they improve over the short-term, deteriorate over the long-term.

This study was able to show, using relatively gross measures of functioning, that the functional ability of elderly hospitalized persons is amenable to change. The next stage of research could use more finely developed measures of functioning so that more information about the patient's strengths and weaknesses is available and the changes that occur over a period of hospitalization.

TABLES

Table 1

Description of Patients,

by Hospital

Hospital	Patients who Participated in Study	Patients who were Excluded from Study		
		Patients who refused to participate	Patients who stayed < 10 days	Patients who were transferred to an acute hospital
Youville	130	6	16	4
Glenrose	109	4	12	9
Auxiliary[1]	89	2	5	0
Total	328	12	33	13

1. The Auxiliary Hospital consisted of patients from four Auxiliary Hospitals - Bethany Care Centre (36 patients), Dr. Vernon Fanning Extended Care Centre (19 patients), Glenmore Park Auxiliary Hospital (25 patients) and Good Samaritan Auxiliary Hospital (9 patients).

Table 2

Sex Distribution,

by Hospital

Hospital	Males	Females	Total
Youville	55	75	130
Glenrose	34	75	109
Auxiliary	24	65	89
All Hospitals	113	215	328

Table 3

Age of Patients,

by Hospital

Hospital	Mean	Standard Deviation
Youville	79	6.7
Glenrose	75	6.2
Auxiliary	82	9.1
All Hospitals	79	7.8

Table 4

Individual Patient Characteristics,

by Hospital

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Perception of general health (range = 0 (poor) to 4 (good))	1.8	1.1	2.2	1.2	1.7	1.0
Perception of future economic security (range = 1 (poorly) to 3 (very well))	2.1	.6	2.3	.5	2.4	.6
Satisfaction with care (range = 0 (very dissatisfied) to 10 (very satisfied))	8.9	1.7	9.4	1.3	8.7	1.8
Aspects of Social Support						
Frequency of spouse's visits (range = 1 to 3)*	1.5	.8	1.7	.9	1.6	.9

Cont'd

Table 4: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Satisfaction with frequency of spouse's visits (range = 0 to 2)**	1.3	.3	1.2	.3	1.2	.2
Number of children that live close enough to visit	2.0	2.1	1.6	1.6	1.3	1.3
Frequency of childrens' visits (range = 1 to 3)*	2.3	.9	2.3	.9	2.4	.9
Satisfaction with frequency of childrens' visits (range = 0 to 2)**	1.1	.4	1.1	.2	1.3	.4
Number of relatives that live close enough to visit	3.5	6.3	2.4	5.4	1.2	1.4
Frequency of relatives' visits (range = 1 to 3)*	1.6	.7	1.7	.8	1.9	.9

Cont'd

Table 4: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Satisfaction with frequency of relatives' visits (range = 0 to 2)**	1.2	.4	1.2	.3	1.2	.3
Number of friends that live close enough to visit	6.4	7.6	12.1	11.5	1.6	3.9
Frequency of friends' visits (range = 1 to 3)*	1.9	.7	2.3	.6	1.4	.7
Satisfaction with frequency of friends' visits (range = 0 to 2)**	1.3	.5	1.3	.4	1.4	.3
Frequency of visiting with other patients in the ward (range = 1 to 3)*	2.3	.8	2.6	.6	2.5	.7

Cont'd

Table 4: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Availability of a confidant (% stating yes)	87.4%	___	91.6%	___	64.5%	___

* A higher number indicates more frequent visits.
** A higher number indicates patient would have liked more frequent visits.

Table 5

Number of Completed Nursing Questionnaires,

by Hospital

Hospital	Completed Questionnaires			
	Before Reminder Letter	After Reminder Letter	% Completed Questionnaires	
Youville	44	14	58/80	73%
Glenrose	38	16	54/78[1]	69%
Good Samaritan	45	13	58/64[2]	91%
Bethany	35	25	60/71[3]	85%
Glenmore Park	35	21	56/80	70%
Fanning	50	2	52/80	65%

1. Two nurses on leave.
2. One nurse on leave.
3. Nine nurses on leave.

Table 6

Structural Dimensions,

by Hospital

Dimension	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Complexity						
Number of direct-care occupational specialities	11	0	12	0	8.4	5
Centralization						
Number of interdisciplinary conferences held/ week with patient	.1	.2	.0	.1	.0	.0
Number of interdisciplinary conferences held/ week with patient's family	.1	.2	.0	.1	.0	.1

Cont'd

Table 6: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Nurses' response to "Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking physicians" (range = 1 to 4)*	2.4	.8	2.3	.6	2.4	.7
Nurses' response to "Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking unit supervisors/head nurses" (range = 1 to 4)*	2.4	.8	2.4	.6	2.0	.8
Nurses' response to "If nursing staff want to make their own decisions about care they are quickly discouraged" (range = 1 to 4)*	2.1	.8	2.2	.7	2.3	.8

Cont'd

Table 6: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Coordination						
Number of interdisciplinary conferences held/week	.8	.5	.3	.4	.1	.1
Frequency with which family was contacted by phone (% > 4 times)	23.2%	—	15.0%	—	34.2%	—
Frequency with which family was contacted while they were visiting (% > 4 times)	32.8%	—	26.2%	—	59.2%	—
Professionalization						
Percentage of nurses with RN Qualification	65.5	0	50.0	0	21.7	3.8
F.T.E. RN Hours per Patient per Day	2.5	0	1.9	0	.6	.2

Cont'd

Table 6: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Ratio of Patients to RNs	2.9	0	3.8	0	13.3	3.4

* 1 - strongly disagree, 4 - strongly agree.

Table 7

Contextual Dimensions,

by Hospital

Dimension	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Size						
Number of beds	194	0	223	0	307	91.1
Technology						
Number of diagnostic services received/ week	10.3	6.9	1.9	2.1	.8	.8
Amount of therapy received/week	113.8	83.7	219.6	118.1	46.3	48.4
Number of consultations received/week	1.8	1.7	.5	.5	.2	.2
Number of internal medications received/day	4.5	2.3	4.1	2.1	3.5	2.5

Cont'd

Table 7: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Number of topical medications received/day	.3	.5	.1	.3	.3	.5
Number of internal and topical medications received/day	4.8	2.5	4.2	2.1	3.8	2.6
Number of visits by attending physician/week	4.3	1.2	1.4	.9	.5	.6
Patient's length of stay	37.9	15.2	36.4	14.9	52.1	10.4
Organizational Climate						
(1) Aspects of Job Satisfaction* (for all items, range = 1 to 5)						
How satisfied are you with your opportunity on the job to fully use your skills and abilities?	3.4	.8	3.5	.8	3.4	.9

Cont'd

Table 7: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
Are you satisfied with the feeling of accomplishment you get from the work you are doing?	3.6	.9	3.8	.7	3.7	.9
Are you satisfied with the opportunity your job allows you to do important and worth-while things?	3.4	.9	3.6	.7	3.6	.9
Overall, how satisfied are you with the kind of work you do?	3.8	.8	3.9	.6	3.8	.9
How satisfied are you with your present supervisor?	4.1	.8	4.0	.9	3.9	1.0
How satisfied are you with your fellow co-workers?	3.9	1.0	4.1	.7	3.8	.8
How satisfied are you with the types of patients you must deal with?	3.4	1.0	3.8	.6	3.8	.7

Cont'd

Table 7: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
How satisfied are you with the doctors you normally work with?	3.5	1.2	3.7	.8	3.5	.8
How satisfied are you with your present salary?	3.6	1.2	3.3	1.1	3.3	1.1
How satisfied are you with the physical conditions of the work place?	4.3	.8	2.8	1.0	3.3	1.0
Are you satisfied with your workload?	3.6	1.1	3.7	.8	3.0	1.1
(2) Aspects of Stress** (for all items, range = 1 to 5)						
How stressful is it if nursing staff have insufficient resources to do all the thing that should be done?	2.4	1.1	2.7	1.2	2.5	1.0

Cont'd

Table 7: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
How often are there insufficient resources on your unit?	3.0	.7	3.1	.7	2.9	.7
How stressful is it if nursing staff are unable to satisfy the conflicting demands of various people (e.g., patients, physicians other paramedical staff, etc.)?	2.2	1.0	2.8	1.1	2.5	1.0
How often are nursing staff unable to satisfy the conflicting demands of various people on your unit?	3.0	.7	3.1	.7	3.0	.8
How stressful is it if there are personality conflicts among nursing staff members?	2.1	1.2	2.3	1.3	2.2	1.1

Cont'd

Table 7: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
How often are there personality conflicts among the nursing staff on your unit?	2.9	.9	3.2	.8	3.0	.8
How stressful is it if physicians are not available when they are wanted?	2.0	1.1	2.5	1.2	2.8	1.1
How often are physicians unavailable when they are wanted on your unit?	3.1	.8	2.9	.8	3.3	.7
How stressful is it if physicians do not communicate well with the nursing staff?	2.0	1.0	2.6	1.1	2.6	1.1
How often do physicians not communicate well with nursing staff on your unit?	3.1	.9	3.4	.7	3.5	.8

Cont'd

Table 7: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
How stressful is it if a patient's behaviour or personality is troublesome?	2.5	1.1	2.5	.9	2.5	1.1
How often are patients' behaviours troublesome on your unit?	2.7	.7	3.0	.6	2.5	.7
How stressful is it if a patient is very ill and his prognosis is poor?	2.8	1.1	2.8	1.0	3.0	1.0
How often are there patients who are ill with poor prognoses on your unit?	2.8	.8	3.5	.5	2.8	.8
How stressful is it if nursing staff are caring for mostly elderly patients?	3.6	1.2	3.4	1.0	3.5	1.2

Cont'd

Table 7: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
How often are nursing staff caring for mostly elderly patients on your unit?	1.7	1.1	2.4	1.0	2.1	1.2
How stressful is it if the workload is so consistently heavy that the nursing staff lack energy for leisure activities?	1.9	1.0	2.3	1.2	2.0	1.1
How often is the workload so consistently heavy that the nursing staff lack energy for leisure activities on your unit?	2.7	.8	3.0	.8	2.4	.9
(3) Aspects of Material Facilities*** (for all items, range = 1 to 5)						
How adequate do you think is the general physical plan and layout of the hospital?	3.8	.9	2.5	.9	3.3	.8

Cont'd

Table 7: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
How adequate do you think are the available space and beds?	4.0	.9	2.5	.8	3.1	.8
How adequate do you think is the available equipment?	3.5	.9	3.2	.8	3.2	.8
How adequate do you think are the available supplies?	3.7	.8	3.5	.8	3.2	.8
How adequate do you think are the therapeutic services that are available for patients?	3.8	.7	3.8	.9	3.6	.8
How adequate do you think is the general financial condition of the hospital?	3.3	.9	3.4	.8	3.2	.8

Cont'd

Table 7: Cont'd

Characteristic	Youville Mean	Youville Standard Deviation	Glenrose Mean	Glenrose Standard Deviation	Auxiliary Mean	Auxiliary Standard Deviation
(4) Nurses' Feelings Towards Patient (range = 0 (negative) to 10 (positive))	8.0	1.9	8.3	1.7	7.8	1.9

* A higher number indicates a higher level of satisfaction.
** A higher number indicates a lower level of stress or less frequent occurrence.
*** A higher number indicates a higher level of adequacy.

Table 8

Pearson Correlation Coefficients Among the Dependent Variables

	Daily Functioning	Cognitive Functioning	Afective Functioning
Daily Functioning	1.00		
Cognitive Functioning	.68*** (N=308)	1.00	
Affective Functioning	.66*** (N=294)	.48*** (N=293)	1.00

*** significant at the .001 level.

Table 9

Mean Level of Functioning[1,2] of Patients

on Discharge (or at 8 weeks),

by Hospital

Hospital	Daily Functioning	Cognitive Functioning	Affective Functioning
Youville	22.5	6.4	13.9
Glenrose	26.3	8.9	15.6
Auxiliary	18.7	5.7	13.5
All Hospitals	22.9	7.1	14.5

1. Higher scores indicate better health/higher functional ability.
2. Excludes patients who died during the study.

Table 10

Number of Patients Who Died During the Study,

by Hospital

Hospital	Total Number of Patients	Patients Who Died	
		Number	Percent
Youville	130	5	3.8%
Glenrose	109	2	1.8%
Auxiliary	89	13	14.6%
Total	328	20	6.1%

Table 11

Mean Level of Functioning[1,2] of Patients on Admission, by Hospital

Hospital	Daily Functioning	Cognitive Functioning	Affective Functioning
Youville	21.3	6.8	12.3
Glenrose	23.3	8.5	13.9
Auxiliary	17.5	5.0	13.0
All Hospitals	21.0	6.9	13.1

1. Higher scores indicate better health/higher functional ability.
2. Excludes patients who died during the study.

Table 12

Mean Level of Functioning[1,2] of Patients

on Admission and Discharge

by Hospital

Hospital	Daily Functioning			Cognitive Functioning			Affective Functioning		
	Admission	Discharge	t[3]	Admission	Discharge	t	Admission	Discharge	t
Youville	21.3	22.5	-2.3*	6.8	6.4	2.9**	12.3	13.9	-5.3***
Glenrose	23.3	26.3	-9.4***	8.5	8.9	-3.7***	13.9	15.6	-5.1***
Auxiliary	17.5	18.7	-2.7**	5.0	5.7	-2.5*	13.0	13.5	-1.0
All Hospitals	21.0	22.9	-6.8***	6.9	7.1	-1.4	13.1	14.5	-7.1***

1. Higher scores indicate better health/higher functional ability.
2. Excludes patients who died during the study.
3. A negative t indicates improvement in functional ability.

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 13

Pearson Correlation Coefficients Among Individual Patient Characteristics and the Dependent Variables

Characteristic	Dependent Variables		
	Daily Functioning	Cognitive Functioning	Affective Functioning
Age	-.30*** (N=308)	-.36*** (N=288)	-.12* (N=274)
Patient's perception of own health	.08 (N=280)	.03 (N=269)	.36*** (N=265)
Patient's perception of future economic security	.08 (N=273)	.09 (N=271)	.17** (N=269)
Patient's satisfaction with care	.25*** (N=274)	.14** (N=272)	.35*** (N=270)
Patient's satisfaction with frequency of spouse's visits	-.03 (N=277)	-.07 (N=275)	-.14** (N=271)
Number of children that live close enough to visit	-.09 (N=277)	-.11* (N=273)	-.06 (N=267)
Patient's satisfaction with frequency of childrens' visits	-.08 (N=275)	-.08 (N=273)	-.19*** (N=269)

Cont'd

Table 13: Cont'd

Characteristic	Dependent Variables: Daily Functioning	Cognitive Functioning	Affective Functioning
Number of friends that live close enough to visit	.27*** (N=272)	.23*** (N=269)	.26*** (N=266)
Frequency with which friends visited	.26*** (N=275)	.35*** (N=272)	.18** (N=267)
Patient's satisfaction with frequency of friends' visits	-.09 (N=275)	-.09 (N=272)	-.13* (N=267)
Frequency with which patient visited other patients in ward	.29*** (N=276)	.35*** (N=274)	.17** (N=271)
Availability of confidant	.23*** (N=273)	.16** (N=272)	.18** (N=271)

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 14

Pearson Correlation Coefficients Among Organizational Characteristics and the Dependent Variables

Characteristic	Dependent Variables		
	Daily Functioning	Cognitive Functioning	Affective Functioning
Whether interdisciplinary staff case conferences were held to discuss patient's treatment	-.09 (N=304)	-.13** (N=284)	-.10* (N=271)
Whether patient's family was present at any interdisciplinary staff case conferences	-.10* (N=303)	-.24*** (N=283)	-.08 (N=270)
Frequency with which nursing staff contacted patient's family by phone to discuss treatment	-.29*** (N=301)	-.25*** (N=282)	-.22*** (N=270)
Frequency with which nursing staff discussed patient's treatment with family while family was visiting	-.29*** (N=304)	-.22*** (N=284)	-.20*** (N=271)
Nursing staff's feelings towards patient	.22*** (N=304)	-.01 (N=284)	.13* (N=271)

Cont'd

Table 14: Cont'd

Characteristic	Dependent Variables		
	Daily Functioning	Cognitive Functioning	Affective Functioning
Patient's length of stay	-.39*** (N=308)	-.16** (N=288)	-.16** (N=274)
Average number of diagnostic services received by patient/ week	-.07 (N=306)	-.02 (N=286)	-.11* (N=273)
Average amount of therapy received by patient/week	.27*** (N=304)	.29*** (N=284)	.13* (N=271)
Average number of consultations received by patient/week	.01 (N=306)	.04 (N=286)	-.10* (N=273)
Average number of internal medications taken by patient/ day	-.01 (N=306)	.18*** (N=286)	-.07 (N=273)
Average number of topical medications received by patient/day	-.16** (N=306)	-.13** (N=286)	-.02 (N=273)
Average number of all medications received by patient/day	-.04 (N=306)	.16** (N=286)	-.07 (N=273)

Cont'd

Table 14: Cont'd

Characteristic	Dependent Variables: Daily Functioning	Cognitive Functioning	Affective Functioning
Average number of attending physician's visits/week	.13** (N=304)	-.07 (N=284)	-.03 (N=271)
Average number of interdisciplinary staff case conferences held/week	.06 (N=299)	-.10* (N=281)	-.14** (N=269)
Average number of interdisciplinary case conferences held with patient/week	.12* (N=303)	.01 (N=284)	-.07 (N=271)
Average number of interdisciplinary conferences held with patient's family/week	.01 (N=302)	-.18*** (N=283)	-.06 (N=270)
Number of beds at hospital	-.15** (N=308)	.02 (N=288)	-.08 (N=274)
Presence of geriatric physicians on staff	.05 (N=308)	.17** (N=288)	.14** (N=274)
Number of direct-care occupational specialities at hospital	.46*** (N=308)	.35*** (N=288)	.20*** (N=274)

Cont'd

Table 14: Cont'd

Characteristic	Dependent Variables: Daily Functioning	Cognitive Functioning	Affective Functioning
F.T.E. RN Hours per Patient per Day	.26*** (N=308)	.10* (N=288)	.04 (N=274)
Ratio of Patients to RNs	-.34*** (N=308)	-.22*** (N=288)	-.09 (N=274)
Percentage of nurses with registered nurse qualification	.25*** (N=308)	.09 (N=288)	.03 (N=274)
Nurses' satisfaction with their opportunity on the job to fully use their skills and abilities	.19*** (N=308)	.21*** (N=288)	.17** (N=274)
Nurses' satisfaction with the feeling of accomplishment they get from the work they are doing	.12* (N=308)	.23*** (N=288)	.14** (N=274)
Nurses' satisfaction with the opportunity their job allows them to do important and worthwhile things	.12* (N=308)	.15** (N=288)	.19*** (N=274)
Nurses' satisfaction with the kind of work they do	.18*** (N=308)	.17** (N=288)	.22*** (N=274)

Cont'd

Table 14: Cont'd

Characteristic	Dependent Variables: Daily Functioning	Cognitive Functioning	Affective Functioning
Nurses' satisfaction with present supervisor	.21*** (N=308)	.09 (N=288)	.00 (N=274)
Nurses' satisfaction with fellow co-workers	.42*** (N=308)	.32*** (N288)	.26*** (N=274)
Nurses' satisfaction with the types of patients with whom they deal	.01 (N=308)	.14** (N=288)	.12* (N=274)
Nurses' satisfaction with doctors they normally work with	.43*** (N=308)	.39*** (N=288)	.26*** (N=274)
Nurses' satisfaction with their present salary	-.01 (N=308)	-.13** (N=288)	-.10* (N=274)
Nurses' satisfaction with the physical conditions of the workplace	-.18*** (N=308)	-.25*** (N=288)	-.20*** (N=274)
Nurses' satisfaction with their workload	.41*** (N=308)	.30*** (N=288)	.16** (N=274)

Cont'd

Table 14: Cont'd

Characteristic	Dependent Variables		
	Daily Functioning	Cognitive Functioning	Affective Functioning
Nurses' perception of their freedom from physician's orders	.21*** (N=308)	.33*** (N=288)	.14** (N=274)
Nurses' perception of their freedom to make decisions about nursing care	-.09* (N=308)	.07 (N=288)	.01 (N=274)
Nurses' perception of the degree to which matters have to be referred to a physician for a final decision	.42*** (N=308)	.14*** (N=288)	.20*** (N=274)
Nurses' perception of their freedom in deciding nursing interventions without asking physicians	-.14** (N=308)	-.18*** (N=288)	-.17** (N=274)
Nurses' perception of their freedom in deciding nursing interventions without asking Unit Supervisor/Head Nurses	.36*** (N=308)	.24*** (N=288)	.09 (N=274)

Cont'd

Table 14: Cont'd

Characteristic	Dependent Variables: Daily Functioning	Cognitive Functioning	Affective Functioning
Nurses' perception of the stress resulting when nursing staff have insufficient resources to do all the things that should be done	.32*** (N=308)	.32*** (N=288)	.25*** (N=274)
Nurses' perception of the frequency with which there are insufficient resources	.40*** (N=308)	.29*** (N=288)	.18** (N=274)
Nurses' perception of the stress resulting when nursing staff are unable to satisfy the conflicting demands of various people	.27*** (N=308)	.33*** (N=288)	.22*** (N=274)
Nurses' perception of the frequency with which they are unable to satisfy conflicting demands	.39*** (N=308)	.37*** (N=288)	.21*** (N=274)
Nurses' perception of the stress resulting when there are personality conflicts among nursing staff	.21*** (N=308)	.29*** (N=288)	.19*** (N=274)

Cont'd

Table 14: Cont'd

Characteristic	Dependent Variables: Daily Functioning	Cognitive Functioning	Affective Functioning
Nurses' perception of the frequency with which there are personality conflicts among nursing staff	.29*** (N=308)	.30*** (N=288)	.24*** (N=274)
Nurses' perception of the stress resulting when physicians are not available when they are wanted	-.11* (N=308)	.02 (N=288)	.07 (N=274)
Nurses' perception of the frequency with which physicians are not available when they are wanted	-.44*** (N=308)	-.40*** (N=288)	-.22*** (N=274)
Nurses' perception of the stress resulting when physicians do not communicate well with the nursing staff	-.03 (N=308)	.11* (N=288)	.10* (N=274)
Nurses' perception of the stress resulting when a patient's behavior or personality is troublesome	.14** (N=308)	.10* (N=288)	.07 (N=274)

Cont'd

Table 14: Cont'd

Characteristic	Dependent Variables: Daily Functioning	Cognitive Functioning	Affective Functioning
Nurses' perception of the frequency with which patients' behaviors are troublesome	.42*** (N=308)	.34*** (N=288)	.26*** (N=274)
Nurses' perception of the stress resulting when a patient is very ill and has poor prognosis	-.45*** (N=308)	-.31*** (N=288)	-.19*** (N=274)
Nurses' perception of the frequency with which patients are very ill and have poor prognoses	.42*** (N=308)	.40*** (N=288)	.27*** (N=274)
Nurses' perception of the stress resulting when nursing staff are caring for mostly elderly patients	-.29*** (N=308)	-.31*** (N=288)	-.25*** (N=274)
Nurses' perception of the frequency with which nursing staff are caring for mostly elderly patients	.23*** (N=308)	.29*** (N=288)	.20*** (N=274)

Cont'd

Table 14: Cont'd

Characteristic	Dependent Variables: Daily Functioning	Cognitive Functioning	Affective Functioning
Nurses' perception of the stress resulting when the workload is so consistently heavy that nursing staff lack energy for leisure activities	.30*** (N=308)	.34*** (N=288)	.22*** (N=274)
Nurses' perception of the frequency with which the workload is so consistently heavy that nursing staff lack energy for leisure activities	.43*** (N=308)	.36*** (N=288)	.20*** (N=274)
Nurses' perception of the adequacy of the general physical plan and layout of the hospital	-.29*** (N=308)	-.31*** (N=288)	-.24*** (N=274)
Nurses' perception of the adequacy of the available space and beds	-.20*** (N=308)	-.27*** (N=288)	-.21*** (N=274)
Nurses' perception of the adequacy of the available equipment	-.02 (N=308)	-.06 (N=288)	-.15** (N=274)

Cont'd

Table 14: Cont'd

Characteristic	Dependent Variables		
	Daily Functioning	Cognitive Functioning	Affective Functioning
Nurses' perception of the adequacy of the available supplies	.24*** (N=308)	.12* (N=288)	.00 (N=274)
Nurses' perception of the adequacy of the therapeutic services that are available for patients	.25*** (N=308)	.27*** (N=288)	.02 (N=274)
Nurses' perception of the adequacy of the general financial condition of the hospital	.21*** (N=308)	.28*** (N=288)	.07 (N=274)
Number of years of nursing experience that nurses have had since completion of basic nursing education program	.33*** (N=308)	.37*** (N=288)	.22*** (N=274)
Age of nurses	.28*** (N=308)	.32*** (N=288)	.22*** (N=274)

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 15

Stepwise Regression of Individual Patient Characteristics[1] to Explain Variance in Daily Functioning at Time of Discharge (N = 271)

Step No.	Characteristic	Standardized Regression Coefficient V023	V095	V002	V110	R^2	Zero-Order Correlation
1	Level of Daily Functioning on Admission (V023)	.68***				.46	.68***
2	Patient's satisfaction with care (V095)	.66***	.16***			.49	.25***
3	Patient's age (V002)	.63***	.15***	-.13**		.50	-.30***

Cont'd

Table 15: Cont'd

Step No.	Characteristic	Standardized Regression Coefficient V023	V095	V002	V110	R^2	Zero-Order Correlation
4	Availability of a confidant (V110)	.62***	.13**	-.12**	.10*	.51	.23***

1. Only significant variables are shown.

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 16

Stepwise Regression of Individual Patient Characteristics[1] to Explain Variance in Cognitive Functioning at Time of Discharge (N = 270)

Step No.	Characteristic	Standardized Regression Coefficient V044	V108	V002	R^2	Zero-Order Correlation
1	Level of Cognitive Functioning on Admission (V044)	.84***			.71	.84***
2	Frequency with which patient visits other patients in ward (V108)	.81***	.09**		.72	.35***

Cont'd

Table 16: Cont'd

Step No.	Characteristic	Standardized Regression Coefficient V044	V108	V002	R^2	Zero-Order Correlation
3	Patient's age (V002)	.79***	.09**	-.08*	.72	-.36***

1. Only significant variables are shown.

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 17

Stepwise Regression of Individual Patient Characteristics[1] to Explain Variance in Affective Functioning at Time of Discharge (N = 251)

Step No.	Characteristic	Standardized Regression Coefficient V033	V095	V105	V045	R^2	Zero-Order Correlation
1	Level of Affective Functioning on Admission (V033)	.58***				.34	.58***
2	Patient's satisfaction with care (V095)	.53***	.20**			.38	.35***
3	Number of friends that lived close enough to visit (V105)	.50***	.20***	.15*		.40	.26***

Cont'd

Table 17: Cont'd

Step No.	Characteristic	Standardized Regression Coefficient V033	V095	V105	V045	R^2	Zero-Order Correlation
4	Patient's perception of own health (V045)	.45***	.19***	.15**	.11*	.41	.36***

1. Only significant variables are shown.

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 18

Stepwise Regression of Organizational Characteristics[1] to Explain Variance in Daily Functioning at Time of Discharge (N = 302)

Step No.	Characteristic	Standardized Regression Coefficient V023	V279	V149	V124	V211	V127	V145	R^2	Zero-Order Correlation
1	Level of Daily Functioning on Admission (V023)	.68***							.46	.68***
2	Nurses' perception of the frequency with which there are patients who are ill with poor prognoses (V279)	.61***	.25***						.52	.42***
3	Average number of attending physician visits/week (V149)	.57***	.31***	.16***					.54	.13**

Cont'd

Table 18: Cont'd

Step No.	Characteristic	Standardized Regression Coefficient V023	V279	V149	V124	V211	V127	V145	R^2	Zero-Order Correlation
4	Nursing staff's feelings towards patient (V124)	.56***	.30***	.16***	.12**				.56	.22***
5	Percentage of nurses with RN qualification (V211)	.57***	.35***	.30***	.12**	-.15*			.56	.25***
6	Patient's length of stay (V127)	.55***	.32***	.27***	.12**	-.17**	-.11*		.57	-.39***

Cont'd

Table 18: Cont'd

Step No.	Characteristic	Standardized Regression Coefficient V023	V279	V149	V124	V211	V127	V145	R^2	Zero-Order Correlation
7	Average number of topical medications received by patient/day (V145)	.55***	.31***	.28***	.12**	-.18**	-.11*	-.08*	.58	-.16**

1. Only significant variables are shown.

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 19

Stepwise Regression of Organizational Characteristics[1] to Explain Variance in Cognitive Functioning at Time of Discharge (N = 283)

Step No.	Characteristic	Standardized Regression Coefficient V044	V270	V289	R^2	Zero-Order Correlation
1	Level of Cognitive Functioning on Admission (V044)	.84***			.71	.84***
2	Nurses' perception of the stress resulting when there are personality conflicts among nursing staff (V270)	.82***	.17***		.74	.29***

Cont'd

Table 19: Cont'd

Step No.	Characteristic	Standardized Regression Coefficient V044	V270	V289	R^2	Zero-Order Correlation
3	Nurses' perception of the adequacy of the general financial condition of the hospital (V289)	.81***	.14***	.08*	.74	.28***

1. Only significant variables are shown.

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 20

Stepwise Regression of Organizational Characteristics[1] to Explain Variance in Affective Functioning at Time of Discharge (N = 256)

Step No.	Characteristic	Standardized Regression Coefficient V033	V277	V122	R^2	Zero-Order Correlation
1	Level of Affective Functioning on Admission (V033)	.58***			.34	.58***
2	Nurses' perception of frequency with which patients' behaviors are troublesome (V277)	.56***	.18***		.37	.26***

Cont'd

Table 20: Cont'd

Step No.	Characteristic	Standardized Regression Coefficient V033	V277	V122	R^2	Zero-Order Correlation
3	Frequency with which nursing staff phoned family to discuss patient's treatment (V122)	.55***	.14**	-.13**	.39	-.22***

1. Only significant varibles are shown.

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 21

Stepwise Regression of Individual Patient and Organizational Characteristics[1] to Explain Variance in Daily Functioning at Time of Discharge (N = 270)

Step No.	Characteristic	Standardized Regression Coefficient							R^2	Zero-Order Correlation
		V023	V279	V149	V124	V110	V211	V127		
1	Level of Daily Functioning on Admission (V023)	.68***							.46	.68***
2	Nurses' perception of the frequency with which there are patients who are ill with poor prognoses (V279)	.61***	.25***						.52	.42***
3	Average number of attending physician visits/week (V149)	.57***	.31***	.16***					.54	.13**

Cont'd

Table 21: Cont'd

Step No.	Characteristic	Standardized Regression Coefficient V023	V279	V149	V124	V110	V211	V127	R^2	Zero-Order Correlation
4	Nursing staff's feelings towards patient (V124)	.56***	.30***	.16***	.12**				.56	.22***
5	Availability of a confidant (V110)	.55***	.29***	.17***	.11**	.10*			.56	.23***
6	Percentage of Nurses with RN qualification (V211)	.56***	.34***	.31***	.11**	.10**	-.17*		.57	.25***
7	Patient's Length of Stay (V127)	.54***	.31***	.29***	.11**	.10**	-.19**	-.10*	.58	-.39***

1. Only significant variables are shown.

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 22

Stepwise Regression of Individual Patient and Organizational Characteristics[1] to Explain Variance in Cognitive Functioning at Time of Discharge (N = 270)

Step No.	Characteristic	Standardized Regression Coefficient V044	V270	V289	R^2	Zero-Order Correlation
1	Level of Cognitive Functioning on Admission (V044)	.84***			.71	.84***
2	Nurses' perception of the stress resulting when there are personality conflicts among nursing staff (V270)	.82***	.17***		.74	.29***

Cont'd

Table 22: Cont'd

Step No.	Characteristic	Standardized Regression Coefficient V044	V270	V289	R^2	Zero-Order Correlation
3	Nurses' perception of the adequacy of the general financial condition of the hospital (V289)	.81***	.14***	.08*	.74	.28***

1. Only significant variables are shown.

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 23

Stepwise Regression of Individual Patient and Organizational Characteristics[1] to Explain Variance in Affective Functioning at Time of Discharge (N = 251)

Step No.	Characteristic	Standardized Regression Coefficient V033	V095	V277	V105	R^2	Zero-order Correlation
1	Level of Affective Functioning on Admission (V033)	.58***				.34	.58***
2	Patient's satisfaction with care (V095)	.53***	.20***			.38	.35***
3	Nurses' perception of the frequency with which patients' behaviors are troublesome (V277)	.51***	.18***	.15**		.40	.26***

Cont'd

Table 23: Cont'd

Step No.	Characteristic	Standardized Regression Coefficient V033	V095	V277	V105	R^2	Zero-order Correlation
4	Number of friends that live close enough to visit (V105)	.50***	.18***	.11*	.11*	.41	.26***

1. Only significant variables are shown.

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Table 24

Relative Influence of Each Set of Predictors

on Daily Functioning

Predictors	Standardized Regression Coefficient			
	Step 1	Step 2A	Step 2B	Step 3
Level of Daily Functioning on Admission (V023)	.68	.67	.55	.54
Individual Patient Characteristics				
Availability of a confidant (V110)		.13		.10
Organizational Characteristics				
Nurses' perception of the frequency with which there are patients' who are ill with poor prognoses (V279)			.32	.31
Average number of attending physician visits/week (V149)			.27	.29
Nursing staff's feelings towards patient (V124)			.12	.11

Cont'd

Table 24: Cont'd

Predictors	Standardized Regression Coefficient			
	Step 1	Step 2A	Step 2B	Step 3
Percentage of nurses with RN qualification (V211)			-.17	-.19
Patient's length of stay (V127)			-.11	-.10
R^2	.46	.48	.57	.58

Table 25

Relative Influence of Each Set of Predictors on

Cognitive Functioning

Predictors	Standardized Regression Coefficient		
	Step 1	Step 2	Step 3
Level of Cognitive Functioning on Admission (V044)	.84		.81
Individual Patient Characteristics		—	
Organizational Characteristics			
Nurses' perception of the stress resulting when there are personality conflicts among nursing staff (V270)			.14

Cont'd

Table 25: Cont'd

Predictors	Standardized Regression Coefficient		
	Step 1	Step 2	Step 3
Nurses' perception of the adequacy of the general financial condition of the hospital (V289)			.08
R^2	.71	—	.74

— In the combined regression, no individual patient characteristics emerged as predictors. Consequently, the inclusion of the organizational variables constituted the final step.

Table 26

Relative Influence of Each Set of Predictors

on Affective Functioning

Predictors	Standardized Regression Coefficient			
	Step 1	Step 2A	Step 2B	Step 3
Level of Affective Functioning on Admission (V033)	.58	.50	.56	.50
Individual Patient Characteristics				
Patient's satisfaction with care (V095)		.20		.18
Number of friends that live close enough to visit (V105)		.15		.11

Cont'd

Table 26: Cont'd

Predictors	Standardized Regression Coefficient			
	Step 1	Step 2A	Step 2B	Step 3
Organizational Characteristics				
Nurses' perception of the frequency with which patients' behaviours are troublesome (V277)			.18	.11
R^2	.34	.40	.37	.41

REFERENCES

Alberta Hospitals and Medical Care, Research and Strategic Planning Branch, Planning Bed Needs for Auxiliary Hospitals and Nursing Homes, Unpublished Paper, October 1982.

Argote, L. (1982). Input uncertainty and organizational coordination in hospital emergency units. Administrative Science Quarterly, 27, 420-434.

Arthur, G.L., Donnan, H.H. and Lair, C.V. (1973). Companionship therapy with nursing home aged. The Gerontologist, 13, 167-170.

Chappell, N. (1981). Measuring functional ability and chronic health conditions among the elderly: A research note on the adequacy of three instruments. Journal of Health and Social Behavior, 22, 90-102.

Chappell, N.L. (1983). Who benefits from adult day care: Changes in functional ability and mental functioning during attendance. Canadian Journal on Aging, 2, 9-26.

Chappell, N.L. and Havens, B. (1980). Old and female: Testing the double jeopardy hypothesis. Sociological Quarterly, 21, 157-171.

Conner, K., Powers, E. and Bultena, G. (1979). Social interaction and life satisfaction: An empirical assessment of late-life patterns. Journal of Gerontology, 34, 116-121.

Daft, R.L. (1983). Organization theory and design. St. Paul, Minnesota: West Publishing Co.

Ellsworth, R.R., Maroney, W., Klett, H., and Gordon, R. (1971). Milieu characteristics of successful psychiatric treatment programs. American Journal of Osthropsychiatry, 41, 427-441.

Flood, A.B., Ewy, W., Scott, W.R., Forrest, W.H. and Brown, B.W. (1979). The relationship between intensity and duration of medical services and outcomes for hospitalized patients. Medical Care, 17, 1055-1102.

Flood, A. and Scott, W.R. (1978). Professional power and professional effectiveness: The power of the surgical staff and the quality of surgical care in hospitals. Journal of Health and Social Behavior, 19, 240-254.

Flood, A.B., Scott, W.R., Ewy, W. and Forrest, W.H. (1982). Effectiveness in professional organizations: The impact of surgeons and surgical staff organizations on the quality of care in hospitals. Health Services Research, 17(4), 341-366.

Georgopoulos, B.S. and Mann, F.C. (1962). The community general hospital. New York: Macmillan.

Gordon, C., Gaitz, C.M. and Scott, J. (1976). Leisure and lives: Personal expectancy across the life span. In R.H. Binstock and E. Shanas (Eds.), Handbook of aging and the social sciences (pp. 310-341). Toronto: Van Nostrand Reinhold.

Greene, V.L. and Monahan, D.J. (1982). The impact of visitation on patient well-being in nursing homes. The Gerontologist, 22, 418-423.

Greenwald, S.R. and Linn, M.W. (1971). Intercorrelation of data on nursing homes. The Gerontologist, 11, 337-340.

Harel, Z. (1981). Quality of care, congruence and well-being among institutionalized elderly. The Gerontologist, 25, 523-531.

Hasenfeld, Y. and English, R.A. (1974). Human service organizations. Ann Arbor: The University of Michigan Press.

Havens, B. (1980). Differentiation of unmet needs using analysis by age/sex cohorts. In V.W. Marshall (Ed.), Aging in Canada - Social perspectives (pp. 215-221). Don Mills: Fitzhenry and Whiteside.

Holland, T.P., Konick, A., Buffum, W., Smith, M.K. and Petchers, M. (1981). Institutionalized structure and resident outcomes. Journal of Health and Social Behavior, 22, 432-444.

Hoyt, D., Kaiser, M., Peters, G. and Babchuk, N. (1980). Life satisfaction and activity theory: A multidimensional approach. Journal of Gerontology, 35, 935-941.

Jaco, E.G. (Ed.). (1979). Patients, physicians and illness (3rd ed.). New York: The Free Press.

Kahn, R.L., Goldfarb, A.J., Pollack, M. and Peck, A. (1960). Brief objective measures for determination of mental status in the aged. American Journal of Psychiatry, 117, 326-328.

Larson, R. (1978). Thirty years of research on the subjective well-being of older Americans. Journal of Gerontology, 33, 109-125.

Leatt, P. and Schneck, R. (1980). Differences in stress perceived by head nurses across nursing specialties in hospitals. Journal of Advanced Nursing, 5, 31-46.

Leatt, P. and Schneck, R. (1985). Sources and management of organizational stress in nursing sub-units in Canada. Organizational Studies, 6, 55-79.

Linn, M.W. (1967). A rapid disability scale. Journal of the American Geriatrics Society, 15, 211-214.

Linn, M.W., Gurel, L. and Linn, B.S. (1977). Patient outcome as a measure of quality of nursing home care. American Journal of Public Health, 67, 337-344.

Luft, H., Bunker, J.P., and Enthoven, A.C. (1979). Should operations be regionalized? The empirical relation between surgical volume and mortality. New England Journal of Medicine, 388, 1364.

Noelker, L. and Harel, Z. (1978). Predictors of well-being and survival among institutionalized aged. The Gerontologist, 18, 562-567.

Palmore, E. and Luikart, C. (1972). Health and social factors related to life satisfaction. Journal of Health and Social Behavior, 13, 68-80.

Payne, B. and Whittington, F. (1976). Older women: on examination of popular stereotypes and research evidence. Social Problems, 23, 488-504.

Penning, M.J. and Chappell, N.L. (1980). A reformulation of basic assumptions about institutions for the elderly. In V.M. Marshall (Ed.), Aging in Canada: Social perspectives (pp. 269-280). Don Mills: Fitzhenry and Whiteside.

Pfeiffer, E. (1976). Multidimensional functional assessment: The OARS methodology. Durham, N.C.: Centre for the Study of Aging and Human Development.

Price, J.L. (1972). Handbook of organizational measurement. Lexington, Massachusetts: D.C. Heath and Company.

Radloff, L.S. (1977). The CES-D Scale: A self report depression scale for research in the general population. Applied Psychological Measurement, 1, 385-401.

Reinke, B.J., Holmes, D.S. and Denney, N.W. (1981). Influence of a "friendly visitor" program on the cognitive functioning and morale of elderly persons. American Journal of Community Psychology, 9, 491-504.

Rhee, S. (1977). Relative importance of physicians' personal and situational characteristics for the quality of patient care. Journal of Health and Social Behavior, 18, 10-15.

Roth, M. (1975). Perspective in the diagrams and treatment of mental disorder in old age. Age and Ageing, 4, 49-63.

Scott, R.W., Forrest, W.H., Jr. and Brown, R.W., Jr. (1976). Hospital structure and post-operative mortality and morbidity. In S.M. Shortell and M. Brown (Eds.), Organizational research in hospitals (pp. 72-89). Chicago: Inquiry Book, Blue Cross Association.

Shanas, E. and Maddox, G.L. (1976). Aging, health and the organization of health resources. In R.H. Binstock and E. Shanas (Eds.), Handbook of aging and the social sciences (pp. 592-618). New York: Van Nostrand Reinhold Co.

Sherwood, S. (Ed.). (1975). Long-Term care: A handbook for researchers, planners and providers. New York: Spectrum.

Shortell, S.M., Becker, S.W. and Neuhauser, D. (1976). The effects of management practices on hospital efficiency and quality of care. In S.M. Shortell and M. Brown (Eds.), Organizational research in hospitals (pp. 90-107). Chicago: Blue Cross Association.

Shortell, S.M. and LoGerfo, J.P. (1981). Hospital medical staff organization and quality of care: Results for myocardial infarction and appendectomy. Medical Care, 19, 1041-1056.

Steers, R.M. (1977). Organizational effectiveness: A behavioral view. Santa Monica, California: Goodyear Publishing Company, Inc.

Stephens, M.A.P. and Bernstein, M.D. (1984). Social support and well-being among residents of planned housing. The Gerontologist, 24, 144-148.

Stone, L.O. and Fletcher, S. (1980). A profile of Canada's older population. Montreal: The Institute for Research on Public Policy.

Ward, R., Sherman, S. and LaGory, M. (1984). Subjective network assessments and subjective well-being. Journal of Gerontology, 39, 93-101.

Weihl, H. (1981). On the relationship between the size of residential institutions and the well-being of residents. The Gerontologist, 21, 247-250.

Wells, L. and Macdonald, G. (1981). Interpersonal networks and post-relocation adjustment of the institutionalized elderly. The Gerontologist, 21, 177-183.

Woolley, F.R., Kane, R.L., Hughes, C.C. and Wright, D.D. (1978). The effects of doctor-patient communication on satisfaction and outcome of care. Social Science and Medicine, 12, 123-128.

APPENDIX 1

Rapid Disability Rating Scale

This questionnaire is to be completed by a staff member who has first-hand knowledge of the patient's condition. Rate the items below (0, 1, or 2) and place the score in the column on the right hand side.

						Patient's Score
a)	Eating (0) considerable assistance	(1)	moderate assistance	(2)	no or minimal assistance	
b)	Diet (0) special diet	(1)	moderate regular diet	(2)	regular diet	
c)	Medication (0) every day	(1)	occasionally	(2)	rarely	
d)	Speech (0) unable to be understood	(1)	moderately impaired	(2)	not impaired	
e)	Hearing (0) deaf	(1)	moderately impaired	(2)	normal	
f)	Sight (0) blind	(1)	moderately impaired	(2)	normal (glasses)	
g)	Walking (0) unable to walk	(1)	crutches-someone's help	(2)	no or minimal assistance	
h)	Bathing (0) considerable assistance	(1)	moderate assistance	(2)	no or minimal assistance	
i)	Dressing (0) considerable assistance	(1)	moderate assistance	(2)	no or minimal assistance	
j)	Incontinence (0) all the time	(1)	occasionally	(2)	never	
k)	Grooming (0) considerable assistance	(1)	moderate assistance	(2)	no or minimal assistance	
l)	Safety Supervision (0) all the time	(1)	sometimes	(2)	never	

m) Confined to Bed
(0) all the time (1) part of the day (2) not at all

n) Mentally confused
(0) all the time (1) occasionally (2) never

o) Uncooperative
(0) all the time (1) occasionally (2) never

p) Depression
(0) all the time (1) occasionally (2) never

Total Score: _____

APPENDIX 2

The Mental Status Questionnaire (MSQ)

Directions: Score correct response 1
Score incorrect response 0

Patient's Score

1. How old are you?
2. What month were you born?
3. What year were you born?
4. What is the date today?
5. What is the month?
6. What is the year?
7. In which city is this hospital?
8. What is your mailing address?
9. Who is the Prime Minister of Canada?
10. Who was the Prime Minister before him?

TOTAL SCORE: _____

APPENDIX 3

CES-D Scale

I'd like to ask you some questions about how you've been feeling lately.

(Score each item as marked and place patient's score in the right hand column. After each question prompt response by saying, "Yes, no, sort of/a bit" or the appropriate cue.)

Could you tell me if lately (over the past week) you have been:

				Patient's Score
1.	Feeling angry (0) Yes	(1) A bit/Sort of	(2) No	
2.	Feeling depressed (0) Yes	(1) A bit/Sort of	(2) No	
3.	Feeling happy (2) Yes	(1) A bit/Sort of	(0) No	
4.	Feeling lonely (0) Yes	(1) A bit/Sort of	(2) No	
5.	Feeling afraid (0) Yes	(1) A bit/Sort of	(2) No	
6.	Feeling sad (0) Yes	(1) A bit/Sort of	(2) No	
7.	Feeling hopeful about the future (2) Yes	(1) A bit/Sort of	(0) No	
8.	Do you feel just as good as other people? (2) Yes	(1) don't know	(0) No	
9.	How's your appetite? (0) Poor	(1) So-so	(2) Good	

TOTAL SCORE: _____

APPENDIX 4

Letter of Identification

January 29th, 1985

TO WHOM IT MAY CONCERN

This is to advise that _____ is working with the Youville Evaluation Project being conducted by the Edmonton General Hospital, the Department of Hospitals and Medical Care and the University of Alberta.

_____ will be assessing patients on admission and on discharge in the following hospitals:

If you have any comments or concerns about the project, please do not hesitate to contact either Ms. Sandra Gutsche, phone 482-8226, who is directing the project or myself.

A.D. Mitchell,
Senior Vice President.

Edmonton General Hospital
111 Street and Jasper Avenue, Edmonton, Alberta T5K 0L4 ● (403) 482-8111

APPENDIX 5

Consent Form

GERIATRIC EVALUATION PROJECT

I agree to participate in this project and to be interviewed to help the hospital determine how it can assist patients to get better. Participation is voluntary. You can refuse to be part of the study at any time. Information will remain confidential.

(Date) _____ Patient's Signature _____

Patient's Name _____

Upon completion of the second interview, this form may be retained with the Patient's medical record.

Edmonton General Hospital
111 Street and Jasper Avenue, Edmonton, Alberta T5K 0L4 ● (403) 482-8111

APPENDIX 6

Memo to Nursing Staff Outlining the Study

January 10, 1985

TO: ALL Nursing Staff

FROM: Sandra Gutsche

RE: YOUVILLE EVALUATION PROJECT

Some of you will be aware that a study to evaluate the effectiveness of the Youville inpatient programs has been underway for the last few months.

Basically what we are doing in the study is as follows:

All patients admitted to the Youville during November, 1984 and January, 1985 are being assessed on various aspects of functioning (physical, mental and affective functioning) within 3 days of admission and again on discharge (or at 8 weeks). Similarly, patients admitted to the Glenrose Hospital and a sample of auxiliary hospitals in Edmonton and Calgary - Good Samaritan Auxiliary Hospital, Glenmore Park Auxiliary Hospital, Bethany Care Centre and Dr. Vernon Fanning Extended Care Centre - are being assessed on admission and on discharge (or at 8 weeks). The outcomes of patients (on these measures) in the different hospitals will then be compared. Variance in outcomes will be explained as a function of hospital characteristics (such as staff/patient ratios, nursing hours per patient/day, qualifications of staff) and individual patient characteristics (such as age, sex, initial level of functioning and social supports).

We are asking you to complete a Physical Functioning questionnaire on each patient in the study on admission and discharge and to provide some information from the patient's record. Unit supervisors/Head Nurses are being asked to provide information on discharge about the frequency with which case conferences are held, frequency with which physician visits patient, etc. In January or February, we will be asking a sample of nurses in all the hospitals to answer some questions about job stress, job satisfaction, participation in decision-making, etc.

Edmonton General Hospital
111 Street and Jasper Avenue, Edmonton, Alberta T5K 0L4 ● (403) 482-8111

One of the most important parts of this study is the assessments made by you and the project staff on patients at admission and discharge (or at 8 weeks). It is thus very important that:

(1) the questionnaires are completed as accurately as possible, and

(2) the project staff are contacted before a patient's discharge so that an assessment can be made before the patient leaves the hospital. If an assessment on discharge is unable to be done because the patient has already left the hospital, that patient must be deleted from the sample.

We have tried to make the questionnaires which you are required to complete as short and simple as possible so that they do not take up any more of your time than is absolutely necessary.

I would like to thank you for the cooperation which you have shown to the project staff. I know that you are busy and appreciate the time you are taking to provide the information which is needed for the project. The study will be completed by June 1985 and results will be available if you are interested.

Sincerely,

SGutsche.

Sandra Gutsche

APPENDIX 7

Letter of Thanks to Nursing Staff

April 2nd, 1985

TO: ALL NURSING STAFF

FROM: Sandra Gutsche

RE: YOUVILLE EVALUATION PROJECT

The assessment of patients in the _____ who were selected for inclusion in the Youville Evaluation Study has now been completed.

On behalf of the project staff who were involved in assessing the patients in the _____ I would like to thank you for the assistance which you provided to them while they were doing their assessments.

Thank you also to those nurses who filled out the questionnaire on job satisfaction and job stress. 80 questionnaires were distributed and _____ were completed.

Over the next 2-3 months I will be collating and analyzing the data which was collected from the hospitals in the study. For those of you who are interested, a summary of the findings will be made available.

Once again, thank you for your excellent cooperation.

Edmonton General Hospital
111 Street and Jasper Avenue, Edmonton, Alberta T5K 0L4 ● (403) 482-8111

APPENDIX 8

Questionnaire for Nursing Staff

YOUVILLE EVALUATION PROJECT

As part of the study which is being conducted by the Edmonton General Hospital to evaluate the Youville Geriatric Services, we would like you to fill out the attached questionnaire. If you haven't heard about this study, there is a brief description of it enclosed. You are one of 80 nurses who has been randomly selected to complete this questionnaire.

The questionnaire aims to find out how you think and feel about your work and the people in your Unit. Your individual answers are completely confidential and will remain anonymous - do not sign your name to the questionnaire.

The value of our study will depend upon the frankness and care with which you answer the questions. There are no right and wrong answers. The main idea is for you to answer the questions the way you feel - the way things seem to you personally. Your answers will be combined with those of the other nurses in this hospital and the results of the survey will be available to you when the research is completed.

Please complete the questionnaire as soon as possible, place it in the envelope provided and forward to:

Thank you very much for your cooperation.

A. ABOUT JOB SATISFACTION

Beside each of the statements listed below, please indicate whether you are strongly satisfied, satisfied, sometimes satisfied, dissatisfied, or very dissatisfied.

	Strongly Satisfied	Satisfied	Sometimes Satisfied	Dissa-tisfied	Very Dissatisfied
1. How satisfied are you with your opportunity on the job to fully use your skills and abilities?	( )	( )	( )	( )	( )
2. Are you satisfied with the feeling of accomplishment you get from the work you are doing?	( )	( )	( )	( )	( )
3. Are you satisfied with the opportunity your job allows you to do important and worthwhile things?	( )	( )	( )	( )	( )
4. Overall, how satisfied are you with the kind of work you do?	( )	( )	( )	( )	( )
5. How satisfied are you with your present supervisor?	( )	( )	( )	( )	( )
6. How satisfied are you with your fellow co-workers?	( )	( )	( )	( )	( )
7. How satisfied are you with the types of patients you must deal with?	( )	( )	( )	( )	( )

8. How satisfied are you with the doctors you normally work with?	( )	( )	( )	( )	( )
9. How satisfied are you with your present salary?	( )	( )	( )	( )	( )
10. How satisfied are you with the physical conditions of the work place?	( )	( )	( )	( )	( )
11. Are you satisfied with your workload?	( )	( )	( )	( )	( )

B. ABOUT PARTICIPATION IN DECISION-MAKING

Beside each of the statements listed below, please indicate whether you strongly agree, agree, disagree, or strongly disagree.

	Strongly Agree	Agree	Disagree	Strongly Disagree
12. There can be little nursing action taken on this unit until a physician writes an order.	( )	( )	( )	( )
13. If the nursing staff want to make their own decisions about nursing care, they are quickly discouraged.	( )	( )	( )	( )
14. Even small matters about patients have to be referred to a physician for a final decision.	( )	( )	( )	( )

15. Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking physicians. ( ) ( ) ( ) ( )

16. Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking Unit Supervisors/ Head Nurses. ( ) ( ) ( ) ( )

C. ABOUT STRESS

Listed below are a number of situations which may or may not be stressful on nursing units.

(a) Please indicate how stressful each situation is to you on your unit by checking the appropriate space.
(b) Please indicate how often the situation occurs on your unit by checking the appropriate space in the enclosed box.

17. How stressful is it if nursing staff have insufficient resources to do all the things that should be done?

___ very little stress
___ a little stress
___ some stress
___ quite a bit of stress
___ very much stress

How often does this situation occur on your unit?

___ never ___ often
___ rarely ___ always
___ sometimes

18. How stressful is it if nursing staff are unable to satisfy the conflicting demands of various people (e.g., patients, physicians, other paramedical staff, etc.)?

____ very little stress
____ a little stress
____ some stress
____ quite a bit of stress
____ very much stress

How often does this situation occur on your unit?

____ never ____ often
____ rarely ____ always
____ sometimes

19. How stressful is it if there are personality conflicts among nursing staff members?

____ very little stress
____ a little stress
____ some stress
____ quite a bit of stress
____ very much stress

How often does this situation occur on your unit?

____ never ____ often
____ rarely ____ always
____ sometimes

20. How stressful is it if physicians are not available when they are wanted?

____ very little stress
____ a little stress
____ some stress
____ quite a bit of stress
____ very much stress

How often does this situation occur on your unit?

____ never ____ often
____ rarely ____ always
____ sometimes

21. How stressful is it if physicians do not communicate well with the nursing staff?

____ very little stress
____ a little stress
____ some stress
____ quite a bit of stress
____ very much stress

How often does this situation occur on your unit?

____ never ____ often
____ rarely ____ always
____ sometimes

22. How stressful is it if a patient's behavior or personality is troublesome?

____ very little stress
____ a little stress
____ some stress
____ quite a bit of stress
____ very much stress

How often does this situation occur on your unit?

____ never ____ often
____ rarely ____ always
____ sometimes

23. How stressful is it if a patient is very ill and his prognosis is poor?

____ very little stress
____ a little stress
____ some stress
____ quite a bit of stress
____ very much stress

How often does this situation occur on your unit?

____ never ____ often
____ rarely ____ always
____ sometimes

24. How stressful is it if nursing staff are caring for mostly elderly patients?

____ very little stress
____ a little stress
____ some stress
____ quite a bit of stress
____ very much stress

How often does this situation occur on your unit?

____ never
____ rarely
____ sometimes
____ often
____ always

25. How stressful is it if the workload is so consistently heavy that the nursing staff lack energy for leisure activities?

____ very little stress
____ a little stress
____ some stress
____ quite a bit of stress
____ very much stress

How often does this situation occur on your unit?

____ never
____ rarely
____ sometimes
____ often
____ always

D. ABOUT MATERIAL FACILITIES

Considering what this hospital needs to provide adequate care and high quality service to its patients at reasonable cost, please indicate how adequate you think each of the following (facilities) is?

	Completely Adequate	Very Adequate	Fairly Adequate	Very Inadequate	Completely Inadequate
26. The general physical plan and layout of the hospital	( )	( )	( )	( )	( )
27. The space and beds available	( )	( )	( )	( )	( )
28. The equipment available	( )	( )	( )	( )	( )
29. The supplies that are available	( )	( )	( )	( )	( )

30. The therapeutic services that are available for patients ( ) ( ) ( ) ( ) ( )

31. The general financial condition of the hospital ( ) ( ) ( ) ( ) ( )

E. ABOUT YOURSELF

32. What is your position on this unit? (e.g. RN/RNA/Nursing attendant, etc.)

Specify _____

33. Do you rotate shifts? ____ Yes ____ No

If yes, what shift do you normally work? Specify _____

If no, what is your permanent shift? Specify _____

34. What hours do you work? (Check one)

____ Full-Time

____ Part-Time

35. How many years of nursing experience have you had since completion of your basic nursing education program? (Check one)

____ less than 1 year ____ 6 to 9 years

____ 1 to 3 years ____ 9 years or more

____ 3 to 6 years

36. How old are you?

____ under 20 years ____ 40 to 49 years

____ 20 to 29 years ____ 50 years or more

____ 30 to 39 years

37. What is your sex?

____ Male ____ Female

If you have difficulty with any of the questions or would like to make any comments about the questionnaire, please contact me.

THANK YOU VERY MUCH FOR YOUR COOPERATION

APPENDIX 8 - CONTINUED

Appendix 8 - Continued

OUTLINE OF THE YOUVILLE EVALUATION PROJECT

The aim of this project is to evaluate the effectiveness of the Youville Geriatric Services.

To do this, the outcomes of patients admitted to the Youville are being compared with the outcomes of patients admitted to the Glenrose Hospital and 4 Auxiliary Hospitals - Bethany Care Centre, Glenmore Park Auxiliary Hospital, Good Samaritan Auxiliary Hospital, and Dr. Vernon Fanning Extended Care Centre.

Patients in each hospital are being assessed on 3 measures of funtioning - physical, mental, and affective functioning. They are being assessed on admission and then again on discharge. If a patient has not been discharged after 8 weeks, he/she will be reassessed at this time.

Variance in outcomes of the patients in the different hospitals will be explained as a function of hospital characteristics (such as staff/patient ratios, nursing hours per patient day, nursing workload, nursing staff level of stress) and individual patient characteristics (such as age, sex, initial level of functioning and social supports).

Assessment of patients began in November 1984 and will be completed by April 1985. It is expected that the data will be analyzed and the research completed by June 1985 at which time the results will be made available to you.

Edmonton General Hospital
111 Street and Jasper Avenue, Edmonton, Alberta T5K 0L4 ● (403) 482-8111

APPENDIX 9

Questionnaire for Unit Supervisors

TO: Nursing Unit Supervisor/Head Nurse

Important: This questionnaire is to be completed by _____

and sent to _____

Patient's Name: _____

1. During this patient's stay in hospital were interdisciplinary conferences held to discuss his/her treatment?

   Yes / No (check one)
   If Yes, how many? _____

   Was the patient present at any of these conferences?

   Yes / No (check one)
   If Yes, how many? _____

   Was the patient's family present at any of these conferences?

   Yes / No (check one)
   If Yes, how many? _____

2. While the patient was in hospital, how frequently did your staff contact his/her family to discuss treatment?* (circle response)

   a) by phone -

      1. not at all
      2. 1 - 3 times
      3. 4 or more times
      4. N/A

   b) when family was visiting -

      1. not at all
      2. 1 - 3 times
      3. 4 or more times
      4. family didn't visit
      5. N/A

* If no family circle N/A - not applicable.

3. What have been your staff's feelings towards this patient during his/her stay in hospital?

0 1 2 3 4 5 6 7 8 9 10

negative positive

4. What have been your staff's feelings towards this patient's family during the patient's stay in hospital?

0 1 2 3 4 5 6 7 8 9 10

negative positive

(If no family write N/A - not applicable) _____

5. How frequently did a physician visit this patient during his/her stay in hospital?

_____

Thank you for your cooperation.

APPENDIX 10

Calculation of Nursing Hours per Patient per Day

In each hospital, Effective Hours per Patient per Day were calculated for RNs, RNAs, and N.Atts using the following formula: -

$$\frac{\text{Number of Full-time Equivalents* (RNs, RNAs \& N.Atts)} \times 1760^{1} \text{ hours}}{\text{Average occupancy between August 1st, 1984 and January 31st, 1985} \times 365 \text{ days}}$$

---

1 1760 hours = Number of Effective Hours/Year.

* Excluded from calculations: unit supervisors, ward aides and unit clerks.

APPENDIX 11

Calculation of Ratio of Patients to Nurses

In each hospital the ratio of patients to nurses (for RNs, RNAs, and N.Atts) was calculated using the following formula: -

$$\frac{\text{Average occupancy between August 1st, 1984 and January 31st, 1985}}{\text{Number of nurses (RNs, RNAs and N.Atts) in hospital in a typical 24 hour period*}}$$

* Excluded from calculations: unit supervisors, ward aides and unit clerks.

APPENDIX 12

Measurement of Technology

Technology was measured by extracting the following information from each patient's record -

A. Diagnostic Services

1. Number of x-rays (including Scans, Cat-Scans and Ultrasound studies)

2. Number of Laboratory Tests (including Haematology, Chemistry, Urinalysis and Microbiology tests)[1]

3. Number of other services (including EEG, ECG, EMG, Urodynamic Studies and Pulmonary function tests)

B. Amount of Treatment Received (in weighted units)[2]

1. Amount of Physiotherapy

2. Amount of Occupational Therapy

3. Amount of Speech Therapy

---

1 Each test was given a value of 1. For example
Glucose Test = 1 Blood Gases Test = 1
Uric Acid Test = 1 Culture Sensitivity Test = 1

2 Recording the amount of treatment received in weighted units takes into account whether the patient receives the treatment from the therapist on a one-to-one basis or in a group setting. More weight is placed on therapy which is received on an individual basis than in a group setting. The same weighting method is used by physiotherapists, occupational therapists and speech therapists in all the hospitals in the study.

To obtain weighted units:

Time units are recorded for individual patients according to the amount of treatment received.

One time unit is equivalent to five minutes of treatment received by the patient.

Each time unit is then weighted in order to equate the time units with the size of the group that the individual is in whilst receiving the treatment.

Size of Group	Weighting Factor
1 person	5
2-3 persons	2
4-6 persons	1
7-9 persons	.66

C. Number of Consultations Received

(Includes psychology, social services, dietetics, pastoral care, physicians other than attending physician, podiatrists, denturists and respiratory technologists).

D. Medications[1]

1. Number of internal medications received.[2]

2. Number of topical medications received.[3]

E. Length of Stay (in days)

---

1 Each medication regardless of how frequently it was taken by patient/day was assigned a value of 1.

2 For example, tranquillizers, sleeping pills, laxatives.

3 For example, ointment, eye and nose drops.

APPENDIX 13

Letter Advising Nurses of Questionnaire

February 7th, 1985

TO: All Nursing Staff

FROM: Sandra Gutsche

Most of you will, no doubt, be aware that _____ is involved in a study currently being conducted by the Edmonton General Hospital to evaluate the effectiveness of the Youville Geriatric Services.

The services provided to patients by the Youville are being compared with the services provided by the Glenrose Hospital, Dr. Vernon Fanning Extended Care Centre, Glenmore Park Auxiliary Hospital, Bethany Care Centre and Good Samaritan Auxiliary Hospital.

Part of the study involves obtaining information about how nurses in each of the hospitals feel about their work and the people with whom they work. To this end, a questionnaire is planned to be distributed to a random sample of nurses in each hospital. About 80 nurses will be selected in each hospital.

If you are selected to participate in the survey (nurses will be chosen randomly) you will receive the questionnaire within 1-2 days. Your cooperation in filling out the questionnaire is greatly appreciated. The results of the study will be available to you when the research is completed.

Edmonton General Hospital
111 Street and Jasper Avenue, Edmonton, Alberta T5K 0L4 ● (403) 482-8111

APPENDIX 14

Reminder Letter for Nursing Questionnaire

February 13th, 1985

TO: All Nursing Staff

_____ Hospital

FROM: Sandra Gutsche

RE: YOUVILLE EVALUATION PROJECT

About a week ago 80 nurses in this hospital were selected to fill out a questionnaire. So far ____ questionnaires have been completed and returned.

In order for us to get a good understanding of your opinions about your work in this hospital, it is necessary that most of these questionnaires are filled out.

As you were asked not to write your names on the questionnaire, we do not know who has/has not returned their questionnaire. If you have already filled out your questionnaire - thank you. If you intend completing it but have not yet done so, please fill it out as soon as possible and return it to the Nursing Office. Extra copies are available from the Nursing Office if you have lost your copy.

Do not hesitate to contact me (Edmonton General Hospital at 482-8226) if you have any concerns about the questionnaire.

Once again, thank you for your cooperation.

Edmonton General Hospital
111 Street and Jasper Avenue, Edmonton, Alberta T5K 0L4 ● (403) 482-8111

APPENDIX 15

Measurement of Individual Patient Characteristics

1. Perceived Health

(a) For your age, would you say that in general, your health is:

	Score
Excellent	4
Very Good	3
Good	2
Fair	1
Poor	0

(b) For your age, how would you rate your physical health:

(circle response)

0 1 2 3 4 5 6 7 8 9 10

can't imagine it being any worse — can't imagine it being any better

(c) For your age, how would you rate your mental health:

(circle response)

0 1 2 3 4 5 6 7 8 9 10

can't imagine it being any worse — can't imagine it being any better

2. Perceived Economic Resources

How well do you think the amount of money you have will take care of your needs in the future? (circle response)

1. very well
2. fairly well
3. poorly

3. Satisfaction with Treatment

How satisfied are you with the care you have received in this hospital? (circle response)

0 1 2 3 4 5 6 7 8 9 10

Very Dissatisfied — Very Satisfied

APPENDIX 16

Social Resources Questionnaire

(adapted from, Pfeiffer, E. (1976). Multidimensional Functional Assessment: The OARS Methodology. Durham, N.C.: Centre for the Study of Aging and Human Development).

1. Are you single, married, widowed, divorced or separated? (circle response)

   1. single
   2. married
   3. widowed
   4. divorced
   5. separated

   If patient is married, ask:

   About how often has your spouse visited you since you've been here? (circle response)

   1. never
   2. only a few times
   3. often

   Did your spouse visit you as often as you wanted or would you like to have seen him/her more or less while you were here? (circle response)

   1. As often as wanted
   2. Would like to have seen him/her more
   3. Would like to have seen him/her less

2. How many children do you have that live close enough to visit you here in the hospital?

   _____

   (If no children, skip next two questions)

   About how often have your children visited you since you've been here in the hospital? (circle response)

   1. never
   2. only a few times
   3. often

Did your children visit you as often as you wanted or would you like to have seen them more or less while you were here? (circle response)

1. As often as wanted
2. Would like to have seen them more
3. Would like to have seen them less

3. How many other relatives (e.g., brothers and sisters) do you have that live close enough to visit you here in the hospital?

_____)

(If no relatives skip next two questions)

About how often have your relatives visited you since you've been here in the hospital? (circle response)

1. never
2. only a few times
3. often

Did your relatives visit you as often as you wanted or would you like to have seen them more or less while you were here? (circle response)

1. As often as wanted
2. Would like to have seen them more
3. Would like to have seen them less

4. How many friends do you have that live close enough to visit you here in the hospital? _____

(If no friends skip next two questions)

About how often have your friends visited you since you've been here in the hospital (circle response)

1. never
2. only a few times
3. often

Did your friends visit you as often as you wanted or would you like to have seen them more or less while you were here?

1. As often as wanted
2. Would like to have seen them more
3. Would like to have seen them less

5. About how often did you visit with the other patients in this ward? (circle response)

1. Never
2. Only a few times
3. Often

6. About how often did you visit with other patients in this hospital? (circle response)

1. Never
2. Only a few times
3. Often

7. Do you have someone you can confide in? (circle response)

1. Yes
2. No
3. Yes but ....

(write in response, e.g. if patient says can confide in someone, but only to a certain extent)

8. If you were sick and at home would there be someone to look after you? (circle response)

1. Yes
2. No

If Yes, ask,

Would this person be able to look after you

1. as long as needed?
2. only for a short time (a few months)?
3. only now and then (e.g. taking you to the doctor or shopping)?

Is this person a relative or a friend? (circle response)

1. relative

2. friend

If relative, probe to get the relationship (i.e., son, daughter, etc.)

_____

_____

Would you be happy with this person taking care of you?

1. Yes

2. No

3. Indifferent

APPENDIX 17

CODE BOOK FOR ALL DATA

Columns	Variable	Description
CARD I		
1-3	V001	Patient ID
4-6	V002	Age (years)
7	V003	Sex Male - 0 Female - 1 Not known - 9
8	V004	Hospital Youville - 1 Glenrose - 2 Fanning - 3 Bethany - 4 Glenmore Park - 5 Good Samaritan - 6
9	V005	Source of Admission Home - 1 Acute Hospital - 2 Auxilary Hospital - 3 Nursing Home - 4 Lodge - 5 Not known - 9
10	V006	Has patient been admitted to hospital before? No - 0 Yes - 1 Not known - 9

Physical Functioning at Admission (This questionnaire was completed by a nursing staff member with first-hand knowledge of the patient's condition)

11	V007	Eating Considerable assistance - 0 Moderate assistance - 1 No or minimal assistance - 2
12	V008	Diet Special diet - 0 Moderate regular diet - 1 Regular diet - 2

Columns	Variable	Description
13	V009	Medication Everyday - 0 Occasionally - 1 Rarely - 2
14	V010	Speech Unable to be understood - 0 Moderately impaired - 1 Not impaired - 2
15	V011	Hearing Deaf - 0 Moderately impaired - 1 Normal - 2
16	V012	Sight Blind - 0 Moderately impaired - 1 Normal (glasses) - 2
17	V013	Walking Unable to walk - 0 Crutches - someone's help - 1 No or minimal assistance - 2
18	V014	Bathing Code as for V007
19	V015	Dressing Code as for V007
20	V016	Incontinence All the time - 0 Occasionally - 1 Never - 2
21	V017	Grooming Code as for V007
22	V018	Safety Supervision Code as for V016

Columns	Variable	Description
23	V019	Confined to Bed All the time - 0 Part of the day - 1 Not at all - 2
24	V020	Mentally Confused Code as for V016
25	V021	Uncooperative Code as for V016
26	V022	Depression Code as for V106
27-28	V023	Physical Functioning Total Score (range 00 to 32)

Affective Functioning At Admission (Patients were asked, "Could you tell me if lately (over the past week) you have been:

29	V024	Feeling Angry Yes - 0 A bit/sort of - 1 No - 2 Missing - 7 Patient couldn't speak/too confused to answer - 8
30	V025	Feeling Depressed Code same as V024
31	V026	Feeling Happy No - 0 A bit/sort of - 1 Yes - 2 7, 8 (as for V024)
32	V027	Feeling Lonely Code same as V024
33	V028	Feeling Afraid Code same as V024

Columns	Variable	Description
34	V029	Feeling Sad Code same as V024
35	V030	Feeling Hopeful About the Future Code same as V026
36	V031	Do you feel just as good as other people? No - 0 Don't know - 1 Yes - 2 7, 8 (as for V024)
37	V032	How's your appetite? Poor - 0 So-so - 1 Good - 2 7, 8 (as for V024)
38-39	V033	Affective Functioning Total Score (range 00 to 18) Responses to some or all questions missing - 77 For some or all questions, patient couldn't speak or was too confused to answer - 88

Mental Status at Admission

40	V034	How old are you? Incorrect response - 0 Correct response - 1 Missing - 7 Patient couldn't speak - 8
41	V035	What month were you born? Code same as V034
42	V036	What year were you born? Code same as V034
43	V037	What is the date today? Code same as V034

Columns	Variable	Description
44	V038	What is the month? Code same as V034
45	V039	What is the year? Code same as V034
46	V040	In which city is this hospital? Code same as V034
47	V041	What is your mailing address? Code same as V034
48	V042	Who is the Prime Minister of Canada? Code same as V034
49	V043	Who was the Prime Minister before him? Code same as V034
50-51	V044	Mental Functioning Total Score (range 00 to 10) Responses to some or all questions missing - 77 Patient unable to speak - 88
52	V045	For your age, would you say that in general, your health is Poor - 0 Fair - 1 Good - 2 Very Good - 3 Excellent - 4 Missing - 7 Patient couldn't speak/too confused to answer - 8
53	V046	When you are at home, do you normally smoke? No - 0 Yes - 1 7, 8 (as for V045)

Columns	Variable	Description
54	V047	(If yes) How much do you smoke? Sometimes, not everyday - 1 Everyday (less than 10) - 2 Everyday (10 - 20) - 3 Everyday (more than 20) - 4 Not applicable (if NO to V046) - 5 7, 8 (as for V045)
55	V048	When you are at home do you normally drink alcohol? Code as for V046
56	V049	(If yes), How much do you drink? 1 - 2 per week - 1 3 - 4 per week - 2 Practically everyday (1-3) - 3 Everyday (more than 3) - 4 Not applicable (if NO to V048) - 5 7, 8 (as for V045)
57-58	V050	For your age, how would you rate your physical health? 0 1 2 3 4 5 6 7 8 9 10 can't imagine it being any worse — can't imagine it being any better Missing - 77 Patient couldn't speak/too confused to answer - 88
59-60	V051	For your age, how would you rate your mental health? Code same as V050
61	V052	Number of days after admission that assessment was done (day patient was admitted = day 0)

Columns	Variable	Description
62	V053	Place to which patient has been discharged Home - 1 Acute Hospital - 2 Auxiliary Hospital - 3 Nursing Home - 4 Lodge - 5 8 week reassessment - 6 Patient deceased - 7 Not known - 9
63	V054	Reason for discharge Completed therapy/treatment, plateaued - 1 8 week reassessment - 2 Patient deceased - 3

Physical Functioning at Discharge

64	V055	Eating Code same as V007
65	V056	Diet Code same as V008
66	V057	Medication Code same as V009
67	V058	Speech Code same as V010
68	V059	Hearing Code same as V011
69	V060	Sight Code same as V012
70	V061	Walking Code same as V013
71	V062	Bathing Code same as V014

Columns	Variable	Description
72	V063	Dressing Code same as V015
73	V064	Incontinence Code same as V016
74	V065	Grooming Code same as V017
75	V066	Safety supervision Code same as V018
76	V067	Confined to Bed Code same as V019
77	V068	Mentally Confused Code same as V020
78	V069	Uncooperative Code same as V021
79	V070	Depression Code same as V022
80	Blank	

CARD 2

1-2	V071	Physical Functioning Total Score (range 00 to 32)

Affective Functioning at Discharge

3	V072	Feeling Angry Yes - 0 A bit/sort of - 1 No - 2 Missing - 7 Patient couldn't speak/too confused to answer - 8

Columns	Variable	Description
4	V073	Feeling Depressed Code same as V072
5	V074	Feeling Happy No - 0 A bit/sort of - 1 Yes - 2 7, 8 (as for V072)
6	V075	Feeling Lonely Code same as V072
7	V076	Feeling Afraid Code same as V072
8	V077	Feeling Sad Code same as V072
9	V078	Feeling hopeful about the future Code same as V074
10	V079	Do you feel just as good as other people? No - 0 Don't know - 1 Yes - 2 7, 8 (as for V072)
11	V080	How's your appetite? Poor - 0 So-so - 1 Good - 2 7, 8 (as for V072)
12-13	V081	Affective Functioning Total Score (range 00 to 18) Missing - 77 For some or all questions patient couldn't speak or was too confused to answer - 88

Columns	Variable	Description
14	V082	For your age, would you say that, in general, your health is: Poor - 0 Fair - 1 Good - 2 Very Good - 3 Excellent - 4 Patient deceased - 5 7, 8 (as for V072)

Mental Status at Discharge

15	V083	How old are you? Incorrect response - 0 Correct response - 1 Missing - 7 Patient couldn't speak - 8
16	V084	What month were you born? Code same as V083
17	V085	What year were you born? Code same as V083
18	V086	What is the date today? Code same as V083
19	V087	What is the month? Code same as V083
20	V088	What is the year? Code same as V083
21	V089	In which city is this hospital? Code same as V083
22	V090	What is your mailing address? Code same as V083
23	V091	Who is the Prime Minister of Canada? Code same as V083

Columns	Variable	Description
24	V092	Who was the Prime Minister before him? Code same as V083
25-26	V093	Mental Functioning Total Score (range 00 to 10) Missing - 77 Patient unable to speak - 88
27	V094	How well do you think the amount of money you have will take care of your needs in the future? Poorly - 1 Fairly well - 2 Very well - 3 Patient deceased - 5 Missing - 7 Patient couldn't speak/too confused to answer - 8
28-29	V095	How satisfied are you with the care you have received in this hospital? 0 1 2 3 4 5 6 7 8 9 10 Very Dissatisfied ... Very Satisfied Patient deceased - 55 Missing - 77 Patient couldn't speak/too confused to answer - 88
30	V096	Are you single, married, widowed, divorced or separated? Patient deceased - 0 Single - 1 Married - 2 Widowed - 3 Divorced - 4 Separated - 5 Missing - 7 Patient couldn't speak/too confused to answer - 8

Columns	Variable	Description
31	V097	About how often has your spouse visited you since you've been here? Never - 1 Only a few times - 2 Often - 3 Patient deceased - 5 Missing/NA - 7 Patient couldn't speak/too confused to answer - 8
32	V098	Did your spouse visit you as often as you wanted or would you like to have seen him/her more or less while you were here? Would like to have seen him/her less - 0 As often as wanted - 1 Would like to have seen him/her more - 2 5, 7, 8, (as for V097)
33-34	V099	How many children do you have that live close enough to visit you here in the hospital? (number) Patient deceased - 55 Missing - 77 Patient couldn't speak/too confused to answer - 88
35	V100	About how often have your children visited you since you've been here in the hospital? Never - 1 Only a few times - 2 Often - 3 5, 7, 8, (as for V097)
36	V101	Did your children visit you as often as you wanted or would you like to have seen them more or less while you were here? Would like to have seen them less - 0 As often as wanted - 1 Would like to have seen them more - 2 5, 7, 8, (as for V097)

Columns	Variable	Description
37-38	V102	How many relatives do you have (e.g., brothers and sisters) that live close enough to visit you here in the hospital? (number) 55, 77, 88 (as for V099) Not many/several - 95* Lots - 97* * Recoded 95 = 3, 97 = 10
39	V103	About how often have your relatives visited you since you've been here in the hospital? Never - 1 Only a few times - 2 Often - 3 5, 7, 8, (as for V097)
40	V104	Did your relatives visit you as often as you wanted or would you like to have seen them more or less while you were here? Would like to have seen them less - 0 As often as wanted - 1 Would like to have seen them more - 2 5, 7, 8, (as for V097)
41-42	V105	How many friends do you have that live close enough to visit you here in the hospital? (number) 55, 77, 88, 95*, 97* (as for V102) * Recoded 95 = 4, 97 = 15.
43	V106	About how often have your friends visited you since you've been here in the hospital? Never - 1 Only a few times - 2 Often - 3 5, 7, 8, (as for V097)
44	V107	Did your friends visit you as often as you wanted or would you like to have seen them more or less while you were here? Would like to have seen them less - 0 As often as wanted - 1 Would like to have seen them more - 2 5, 7, 8, (as for V097)

Columns	Variable	Description
45	V108	About how often did you visit with the other patients in this ward? Never - 1 Only a few times - 2 Often - 3 5, 7, 8 (as for V094)
46	V109	About how often did you visit with the other patients in this hospital? Never - 1 Only a few times - 2 Often - 3 5, 7, 8 (as for V094)
47	V110	Do you have someone you can trust and confide in? No - 0 Yes - 1 5, 7, 8 (as for V094)
48	V111	If you were sick at home would there be someone to look after you? No - 0 Yes - 1 5, 7, 8 (as for V094)
49	V112	Would this person be able to look after you As long as needed - 1 Only for a short time (a few months) - 2 Only now and then (e.g., taking you to the doctor or shopping) - 3 5, 7, 8 (as for V097)
50	V113	Is this person related to you or a friend? Relative - 1 Friend - 2 5, 7, 8, (as for V097)

Columns	Variable	Description
51	V114	What relation is this person to you? Spouse - 1 Son/Stepson/Daughter/Daughter-in-law - 2 Sister/Brother/Sister-in-law/Brother-in-law/Niece - 3 5, 7, 8, (as for V097)
52	V115	Would you be happy with this person taking care of you? No - 0 Yes - 1 Indifferent - 2 5, 7, 8, (as for V097)
53	V116	During this patient's stay in hospital were interdisciplinary staff case conferences held to discuss his/her treatment? No - 0 Yes - 1 Missing - 7
54-55	V117	How many interdisciplinary staff case conferences were held? (number) Missing - 77
56	V118	Was the patient present at any of these conferences? No - 0 Yes - 1 Missing - 7 Not applicable (if No to V116) - 9
57-58	V119	At how many conferences was the patient present? (number) Missing - 77 Not applicable (if NO to V116) - 99
59	V120	Was the patient's family present at any of these conferences? Code as for V118

Columns	Variable	Description
60-61	V121	At how many conferences was the patient's family present? (number) Missing - 77 Not applicable (if No to V116 or V120) - 99
62	V122	While the patient was in hospital, how frequently did your staff contact the family by phone to discuss treatment? Not at all - 1 1 - 3 times - 2 4 or more times - 3 Missing - 7 Not applicable (if no family) - 9
63	V123	While the patient was in hospital, how frequently did your staff contact the family to discuss the patient's treatment when they were visiting? 1, 2, 3, 7, 9 (as for V122) Family didn't visit - 4
64-65	V124	What have been your staff's feelings towards this patient during his/her stay in hospital? 0 1 2 3 4 5 6 7 8 9 10 Negative Positive Missing - 77
66-67	V125	What have been your staff's feelings towards this patient's family during his/her stay in hospital? 0 1 2 3 4 5 6 7 8 9 10 Negative Positive Missing - 77 Not applicable (if no family or family didn't visit) - 99

Columns	Variable	Description
68-69	V126	How frequently did the attending physician visit this patient during his/her stay in hospital? (number) Missing - 77
70-71	V127	Length of stay (in days).
72	V128	Was the patient transferred to an acute hospital during his/her stay in hospital? No - 0 Yes - 1 Missing - 9
73-74	V129	How long did the patient stay in the acute hospital? (in days) Not applicable (if NO to V128) - 99 Missing - 88
75-76	V130	Number of X-rays patient received during his/her stay Missing - 99
77-78	V131	Number of laboratory tests patient received during his/her stay Missing - 99
79-80	V132	Number of other diagnostic services patient received during his/her stay Missing - 99
CARD 3		
1-2	V133	Total number of all diagnostic services received (V130 + V131 + V132) Missing - 99
3-5	V134	Average number of all diagnostic services received/week. Missing - 999

Columns	Variable	Description
6-9	V135	Amount of physiotherapy treatment received (in weighted units) Missing - 9999
10-13	V137	Amount of occupational therapy received (in weighted units) Missing - 9999
14-17	V137	Amount of speech therapy received (in weighted units) Missing - 9999
18-21	V138	Total amount of therapy received (V135 + V136 + V137) Missing - 9999
22-25	V139	Average amount of total therapy received/week. Missing - 9999
26-27	V140	Number of consultations received Missing - 99
28-29	V141	Average number of consultations received/week Missing - 99
30-32	V142	Number of internal medications received Missing - 999
33-35	V143	Average number of internal medications received/day Missing - 999
36-38	V144	Number of topical medications received Missing - 999
39-41	V145	Average number of topical medications received/day Missing - 999

Columns	Variable	Description
42-44	V146	Average number of internal and topical medications received/day Missing - 999
45-46	V147	Number of visits by attending physician Missing - 99
47-49	V148	Average number of visits by attending physician/week (as recorded on patient's charts) Missing - 999
50		Blank

Hospital Characteristics

For each hospital, the following information, V150-V164 was added to the data on each patient in that hospital.

51-53	V200	Number of beds
54	V201	Are geriatric physicians on staff at the hospital? Yes - 1 No - 2
55-56	V202	Number of direct care occupational specialities at the hospital
57-59	V203	Full-time Equivalent Registered Nurse hours per patient per day
60-62	V204	Full-time Equivalent Registered Nursing Assistant hours per patient per day
63-65	V205	Full-time Equivalent Nursing Attendant hours per patient per day
66-68	V206	Full-time Equivalent Nursing Hours (all levels) per patient per day
69-72	V207	Ratio of Patients to Registered Nurses
73-76	V208	Ratio of Patients to Registered Nursing Assistants
77-80	V209	Ratio of Patients to Nursing Attendants

Columns	Variable	Description
CARD 4		
1-4	V210	Ratio of Patients to Nurses (all qualifications)
5-7	V211	Percentage of Nurses with Registered Nurse qualification
8-10	V212	Percentage of Nurses with Registered Nursing Assistant qualification
11-13	V213	Percentage of Nurses with Nursing Attendant qualification
14	V214	Ownership of Hospital District - 1 Provincial - 2 Religious - 3

Nursing Questionnaire

For each hospital, the mean of all the nurses' responses to each question (see Code Book, Appendix 18, for list of questions) was calculated and added to the information on each patient in that hospital.

15-18	V250	How satisfied are you with your opportunity on the job to fully use your skills and abilities? Mean
19-22	V251	Are you satisfied with the feeling of accomplishment you get from the work you are doing? Mean
23-25	V252	Are you satisfied with the opportunity your job allows you to do important and worthwhile things? Mean
27-30	V253	Overall, how satisfied are you with the kind of work you do? Mean

Columns	Variable	Description
31-34	V254	How satisfied are you with your present supervisor?
		Mean
35-38	V255	How satisfied are you with your fellow co-workers?
		Mean
39-42	V256	How satisfied are you with the types of patients you must deal with?
		Mean
43-46	V257	How satisfied are you with the doctors you normally work with?
		Mean
47-50	V258	How satisfied are you with your present salary?
		Mean
51-54	V259	How satisfied are you with the physical conditions of the work place?
		Mean
55-58	V260	Are you satisfied with your workload?
		Mean
59-62	V261	There can be little nursing action taken on this unit until a physician writes an order.
		Mean
63-66	V262	If the nursing staff want to make their own decisions about nursing care, they are quickly discouraged.
		Mean
67-70	V263	Even small matters about patients have to be referred to a physician for a final decision.
		Mean

Columns	Variable	Description
71-74	V264	Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking physicians.
		Mean
75-78	V265	Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking Unit Supervisors/Head Nurses.
		Mean
79-80	Blank	
CARD 5		
1-4	V266	How stressful is it if nursing staff have insufficient resources to do all the things that should be done?
		Mean
5-8	V267	How often are there insufficient resources on your unit?
		Mean
9-12	V268	How stressful is it if nursing staff are unable to satisfy the conflicting demands of various people (e.g., patients, physicians, other paramedical staff, etc.)?
		Mean
13-16	V269	How often are nursing staff unable to satisfy the conflicting demands of various people on your unit?
		Mean
17-20	V270	How stressful is it if there are personality conflicts among nursing staff members?
		Mean
21-24	V271	How often are there personality conflicts among the nursing staff on your unit?
		Mean

Columns	Variable	Description
25-28	V272	How stressful is it if physicians are not available when they are wanted?
		Mean
29-32	V273	How often are physicians unavailable when they are wanted on your unit?
		Mean
33-36	V274	How stressful is it if physicians do not communicate well with the nursing staff?
		Mean
37-40	V275	How often do physicians not communicate well with nursing staff on your unit?
		Mean
41-44	V276	How stressful is it if a patient's behavior or personality is troublesome?
		Mean
45-48	V277	How often are patients' behaviors troublesome on your unit?
		Mean
49-52	V278	How stressful is it if a patient is very ill and his prognosis is poor?
		Mean
53-56	V279	How often are there patients who are ill with poor prognoses on your unit?
		Mean
57-60	V280	How stressful is it if nursing staff are caring for mostly elderly patients?
		Mean
61-64	V281	How often are nursing staff caring for mostly elderly patients on your unit?
		Mean

Columns	Variable	Description
65-68	V282	How stressful is it if the workload is so consistently heavy that the nursing staff lack energy for leisure activities?
		Mean
69-72	V283	How often is the workload so consistently heavy that the nursing staff lack energy for leisure activities on your unit?
		Mean
73-76	V284	How adequate do you think is the general physical plan and layout of the hospital?
		Mean
77-80	V285	How adequate do you think are the available space and beds?
		Mean
CARD 6		
1-4	V286	How adequate do you think is the available equipment?
		Mean
5-8	V287	How adequate do you think are the available supplies?
		Mean
9-12	V288	How adequate do you think are the therapeutic services that are available for patients?
		Mean
13-16	V289	How adequate do you think is the general financial condition of the hospital?
		Mean
17-20	V290	What is your position on this unit?
		Mean
21-24	V291	Do you rotate shifts?
		Mean

Columns	Variable	Description
25-28	V292	What shift do you normally work?
		Mean
29-32	V293	What hours do you work?
		Mean
33-36	V294	How many years of nursing experience have you had since completion of your basic nursing education program?
		Mean
37-40	V295	How old are you?
		Mean

Nursing Questionnaire

For each hospital, the median of all the nurses' responses to each question (see Code Book, Appendix 18, for list of questions) was calculated and added to the information on each patient in that hospital.

41-42	V350	How satisfied are you with your opportunity on the job to fully use your skills and abilities?
		Median
43-44	V351	Are you satisfied with the feeling of accomplishment you get from the work you are doing?
		Median
45-46	V352	Are you satisfied with the opportunity your job allows you to do important and worthwhile things?
		Median
47-48	V353	Overall, how satisfied are you with the kind of work you do?
		Median
49-50	V354	How satisfied are you with your present supervisor?
		Median

Columns	Variable	Description
51-52	V355	How satisfied are you with your fellow co-workers?
		Median
53-54	V356	How satisfied are you with the types of patients you must deal with?
		Median
55-56	V357	How satisfied are you with the doctors you normally work with?
		Median
57-58	V358	How satisfied are you with your present salary?
		Median
59-60	V359	How satisfied are you with the physical conditions of the work place?
		Median
61-62	V360	Are you satisfied with your workload?
		Median
63-64	V361	There can be little nursing action taken on this unit until a physician writes an order.
		Median
65-66	V362	If the nursing staff want to make their own decisions about nursing care, they are quickly discouraged.
		Median
67-68	V363	Even small matters about patients have to be referred to a physician for a final decision.
		Median
69-70	V364	Nurses on this unit have a great deal of freeedom in deciding nursing interventions for patients without asking physicians.
		Median

Columns	Variable	Description
71-72	V365	Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking Unit Supervisors/Head Nurses.
		Median
73-74	V366	How stressful is it if nursing staff have insufficient resources to do all the things that should be done?
		Median
75-76	V367	How often are there insufficient resources on your unit?
		Median
77-78	V368	How stressful is it if nursing staff are unable to satisfy the conflicting demands of various people (e.g., patients, physicians, other paramedical staff, etc.)?
		Median
79-80	V369	How often are nursing staff unable to satisfy the conflicting demands of various people on your unit?
CARD 7		
1-2	V370	How stressful is it if there are personality conflicts among nursing staff members?
		Median
3-4	V371	How often are there personality conflicts among the nursing staff on your unit?
		Median
5-6	V372	How stressful is it if physicians are not available when they are wanted?
		Median
7-8	V373	How often are physicians unavailable when they are wanted on your unit?
		Median

Columns	Variable	Description
9-10	V374	How stressful is it if physicians do not communicate well with the nursing staff?
		Median
11-12	V375	How often do physicians not communicate well with nursing staff on your unit?
		Median
13-14	V376	How stressful is it if a patient's behavior or personality is troublesome?
		Median
15-16	V377	How often are patients' behaviors troublesome on your unit?
		Median
17-18	V378	How stressful is it if a patient is very ill and his prognosis is poor?
		Median
19-20	V379	How often are there patients who are ill with poor prognoses on your unit?
		Median
21-22	V380	How stressful is it if nursing staff are caring for mostly elderly patients?
		Median
23-24	V381	How often are nursing staff caring for mostly elderly patients on your unit?
		Median
25-26	V382	How stressful is it if the workload is so consistently heavy that the nursing staff lack energy for leisure activities?
		Median
27-28	V383	How often is the workload so consistently heavy that the nursing staff lack energy for leisure activities on your unit?
		Median

Columns	Variable	Description
29-30	V384	How adequate do you think is the general physical plan and layout of the hospital? Median
31-32	V385	How adequate do you think are the available space and beds? Median
33-34	V386	How adequate do you think is the available equipment? Median
35-36	V387	How adequate do you think are the available supplies? Median
37-38	V388	How adequate do you think are the therapeutic services that are available for patients? Median
39-40	V389	How adequate do you think is the general financial condition of the hospital? Median
41-42	V390	What is your position on this unit? Median
43-44	V391	Do you rotate shifts? Median
45-46	V392	What shift do you normally work? Median
47-48	V393	What hours do you work? Median
49-50	V394	How many years of nursing experience have you had since completion of your basic nursing education program? Median

Columns	Variable	Description
51-52	V395	How old are you? Median
53	V400	Assignment of patients into 2 groups Clean file - 0 Work file - 1

The following new variables were created:

$$V149 = \frac{V126 \times 7}{V127}$$ = average number of attending physician visits/week (as stated by Unit supervisors/Head Nurses).

$$V185 = \frac{V117 \times 7}{V127}$$ = average number of interdisciplinary conferences held/week

$$V186 = \frac{V119 \times 7}{V127}$$ = average number of interdisciplinary conferences held with patient/week

$$V187 = \frac{V121 \times 7}{V127}$$ = average number of interdisciplinary conferences held with patient's family/week

DYOU - dummy variable for Youville (a patient in Youville scored 1 and 0 on the other two categories).

DGLEN - dummy variable for Glenrose (a patient in Glenrose scored 1 and 0 on the other two categories).

APPENDIX 18

Code Book for Nursing Questionnaire

Columns	Variable	Description
CARD 1		
1	V01	Hospital Youville - 1 Glenrose - 2 Fanning - 3 Bethany - 4 Glenmore Park - 5 Good Samaritan - 6
2-3	V02	Nurse ID
4	V03	How satisfied are you with your opportunity on the job to fully use your skills and abilities? Very dissatisfied - I Dissatisfied - 2 Sometimes satisfied - 3 Satisfied - 4 Strongly satisfied - 5 No response - 9
5	V04	Are you satisfied with the feeling of accomplishment you get from the work you are doing? Code as for V03
6	V05	Are you satisfied with the opportunity your job allows you to do important and worthwhile things? Code as for V03
7	V06	Overall, how satisfied are you with the kind of work you do? Code as for V03
8	V07	How satisfied are you with your present supervisor? Code as for V03
9	V08	How satisfied are you with your fellow co-workers? Code as for V03

Columns	Variable	Description
10	V09	How satisfied are you with the types of patients you must deal with? Code as for V03
11	V10	How satisfied are you with the doctors you normally work with? Code as for V03
12	V11	How satisfied are you with your present salary? Code as V03
13	V12	How satisfied are you with the physical conditions of the work place? Code as for V03
14	V13	Are you satisfied with your workload? Code as for V03
15	V14	There can be little nursing action taken on this unit until a physician writes an order. Strongly disagree - 1 Disagree - 2 Agree - 3 Strongly Agree - 4 No response - 9
16	V15	If the nursing staff want to make their own decisions about nursing care, they are quickly discouraged. Code as for V14
17	V16	Even small matters about patients have to be referred to a physician for a final decision. Code as for V14
18	V17	Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking physicians. Code as for V14

Columns	Variable	Description
19	V18	Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking Unit Supervisors/Head Nurses. Code as for V14
20	V19	How stressful is it if nursing staff have insufficient resources to do all the things that should be done? Very much stress - 1 Quite a bit of stress - 2 Some stress - 3 A little stress - 4 Very little stress - 5 No response - 9
21	V20	How often are there insufficient resources on your unit? Always - 1 Often - 2 Sometimes - 3 Rarely - 4 Never - 5 No response - 9
22	V21	How stressful is it if nursing staff are unable to satisfy the conflicting demands of various people (e.g., patients, physicians, other paramedical staff, etc.)? Code as for V19
23	V22	How often are nursing staff unable to satisfy the conflicting demands of various people on your unit? Code as for V20
24	V23	How stressful is it if there are personality conflicts among nursing staff members? Code as for V19
25	V24	How often are there personality conflicts among the nursing staff on your unit? Code as for V20

Columns	Variable	Description
26	V25	How stressful is it if physicians are not available when they are wanted? Code as for V19
27	V26	How often are physicians unavailable when they are wanted on your unit? Code as for V20
28	V27	How stressful is it if physicians do not communicate well with the nursing staff? Code as for V19
29	V28	How often do physicians not communicate well with nursing staff on your unit? Code as for V20
30	V29	How stressful is it if a patient's behavior or personality is troublesome? Code as for V19
31	V30	How often are patients' behaviors troublesome on your unit? Code as for V20
32	V31	How stressful is it if a patient is very ill and his prognosis is poor? Code as for V19
33	V32	How often are there patients who are ill with poor prognoses on your unit? Code as for V20
34	V33	How stressful is it if nursing staff are caring for mostly elderly patients? Code as for V19
35	V34	How often are nursing staff caring for mostly elderly patients on your unit? Code as for V20

Columns	Variable	Description
36	V35	How stressful is it if the workload is so consistently heavy that the nursing staff lack energy for leisure activities? Code as for V19
37	V36	How often is the workload so consistently heavy that the nursing staff lack energy for leisure activities on your unit? Code as for V20
38	V37	How adequate do you think is the general physical plan and layout of the hospital? Completely inadequate - 1 Very inadequate - 2 Fairly adequate - 3 Very adequate - 4 Completely adequate - 5 No response - 9
39	V38	How adequate do you think are the available space and beds? Code as for V37
40	V39	How adequate do you think is the available equipment? Code as for V37
41	V40	How adequate do you think are the available supplies? Code as for V37
42	V41	How adequate do you think are the therapeutic services that are available for patients? Code as for V37
43	V42	How adequate do you think is the general financial condition of the hospital? Code as for V37

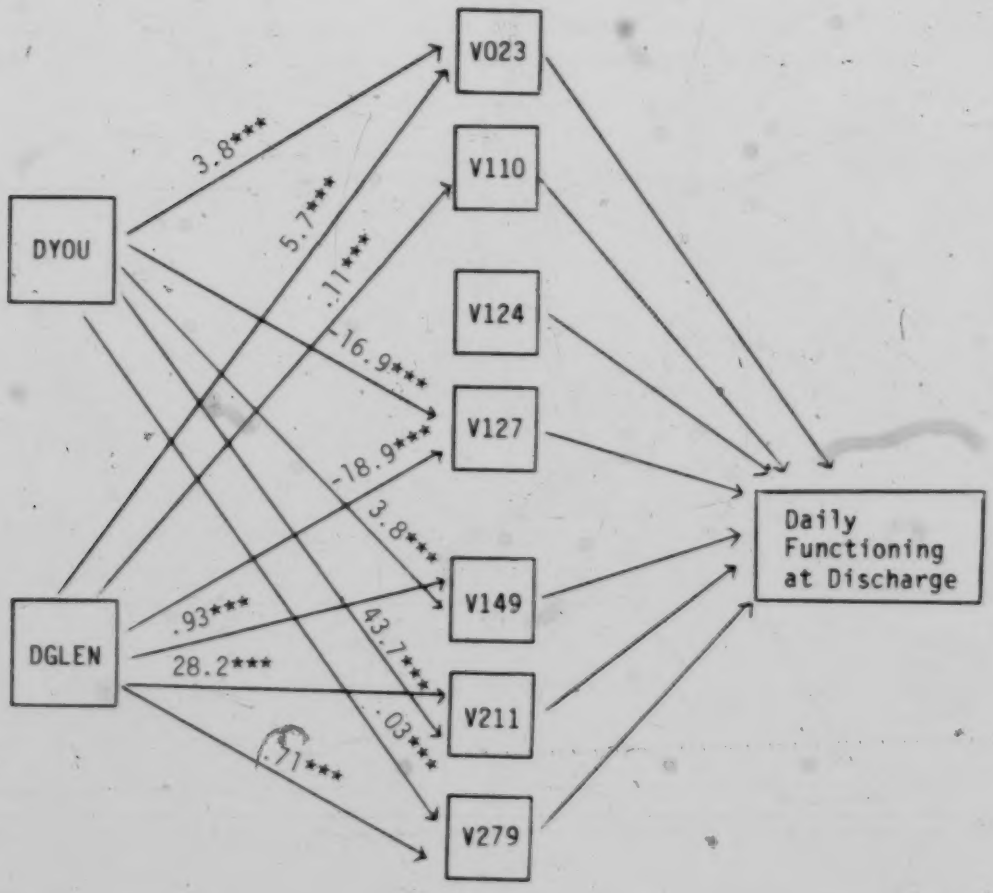
Columns	Variable	Description
44	V43	What is your position on this unit? Registered Nurse - 1 Registered Nursing Assistant - 2 Nursing Attendant - 3 No response - 9
45	V44	Do you rotate shifts? No - 0 Yes - 1 Occasionally - 2 No response - 9
46	V45	What shift do you normally work? Days - 1 Afternoons - 2 Evenings/Nights - 3 Relief - 4 Days/Evenings - 5 Days/Nights - 6 No response - 9 (2-6 were recoded as 2)
47	V46	What hours do you work? Full-time - 1 Part-time - 2 No response - 9
48	V47	How many years of nursing experience have you had since completion of your basic nursing education program? Less than 1 year - 1 1 to 3 years - 2 3 to 6 years - 3 6 to 9 years - 4 9 years or more - 5 No response - 9
49	V48	How old are you? Under 20 years - 1 20 to 29 years - 2 30 to 39 years - 3 40 to 49 years - 4 60 years or more - 5 No response - 9

Columns	Variable	Description
50	V49	Sex.

Male - 0
Female - 1
No response - 9

APPENDIX A9

Indirect Effects of Dummy Variables on Daily Functioning (N=270)[a]



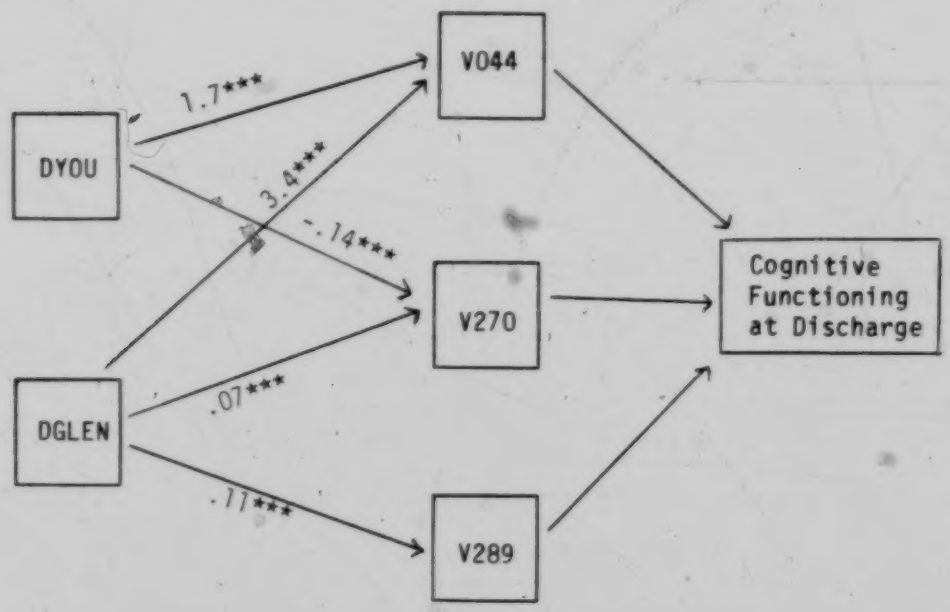
[a] Unstandardized Regression Coefficients

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Variables

V023 - Level of Daily Functioning on Admission
V110 - Availability of a Confidant
V124 - Nursing staffs feelings towards patient
V127 - Patient's length of stay
V149 - Average number of attending physician visits/week
V211 - Percentage of nurses with RN qualification
V279 - Nurses perception of the frequency with which there are patients who are ill with poor prognoses.

Indirect Effects of Dummy Variables on Cognitive Functioning (N=295)[a]



[a] Unstandardized Regression Coefficients

*** significant at the .001 level.

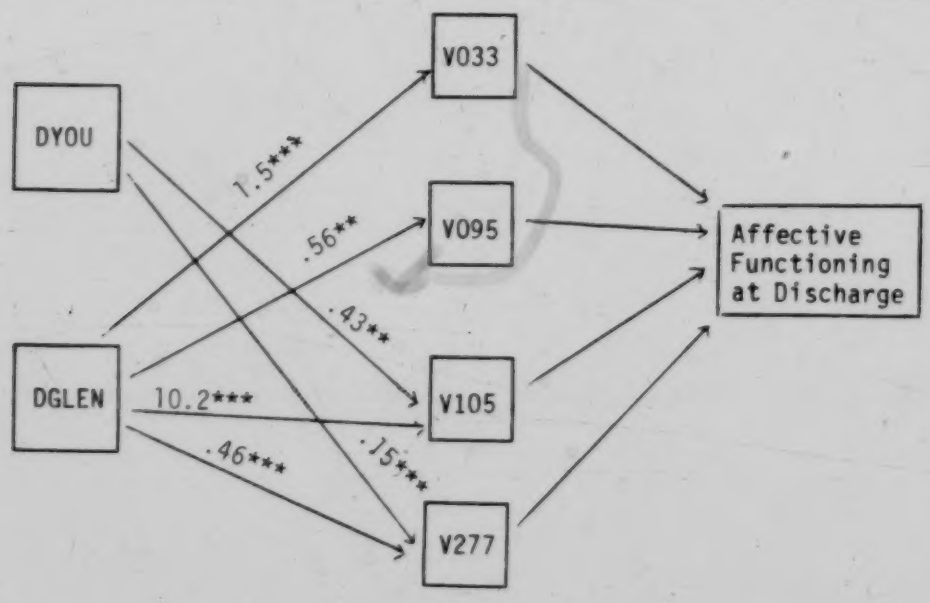
Variables

V044 - Level of Cognitive Functioning on Admission

V270 - Nurses' perception of the stress resulting when there are personality conflicts among nursing staff

V289 - Nurses' perception of the adequacy of the general financial condition of the hospital

Indirect Effects of Dummy Variables on Affective Functioning (N=251)[a]



[a] Unstandardized Regression Coefficients

*** significant at the .001 level.
** significant at the .01 level.
* significant at the .05 level.

Variables

V033 - Level of Affective Functioning on Admission
V095 - Patient's satisfaction with care
V105 - Number of children that live close enough to visit
V277 - Nurses' perception of the frequency with which patients' behaviors are troublesome.